

ANNOTATED CHECKLIST OF THE FISHES OF MORETON BAY, QUEENSLAND, AUSTRALIA

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J.W. JOHNSON

A total of 750 species of marine and estuarine fishes are recorded from Moreton Bay, Queensland, Australia. Of the species recorded, 355 are considered uncommon or rare, 132 are at the southern limit and 26 are at the northern limit of their known distribution on the east coast of Australia. Many species reported represent significant extensions of their known range. □ *Checklist, fishes, biodiversity, Moreton Bay, Queensland, Australia.*

J.W. Johnson, Ichthyology, Queensland Museum, PO Box 3300 South Brisbane 4101, Australia; 15 March 1999.

Moreton Bay is a large, broadly triangular, semi-enclosed, subtropical bay and tidal estuary. A total of 750 species of marine and estuarine fishes are recorded from the area. High species diversity in fishes is often associated with large diverse coral reefs, a feature absent from this area. The extent of coral growth is restricted to several small localised reefs and fringing reef off a few low wooded islands. In Moreton Bay, relatively high diversity appears to be a function of a wide array of habitat types and a crossover between the ranges of tropical and temperate species. Moreton Bay has been highly productive, yielding a significant proportion of the commercial and recreational catch of Queensland despite exploitation of the fishery for over a century. Of the species recorded, 355 are considered uncommon or rare, 132 are at the southern limit and 26 are at the northern limit of their known distribution on the east coast of Australia. The large proportion of uncommon and rare species may be due to the long period over which fishes have been collected increasing the chances of occasional records of rare, extra-limital, vagrant deep water and oceanic species and the dynamic and marginal nature of some major habitat types. Many species records reported represent significant extensions of known range.

GEOGRAPHY AND HYDROLOGY

Moreton Bay covers an area of approximately 1600km² between Comboyuro Pt (27°04'S) and the Nerang River mouth (27°59'S). It is bounded by the mainland of the greater Brisbane region to the west and by two large sand islands, Moreton and Stradbroke, to the east. Connection to the

ocean is via four separate entrances, by far the largest of which is a 15km wide complex system of channels and sand banks between Bribie and Moreton Islands. Narrower entrances are found at South Passage, Jumpinpin and the recently stabilised Southport seaway. The width of the bay varies from 1 to 33km, with the southern section narrowing into mangrove islands and river delta. The northern and eastern shores of Moreton Bay differ generally from those of the west and south through higher salinity, narrower temperature range, lower turbidity, more coarse sand and greater diversity of seagrass species.

Numerous creeks and rivers discharge into the bay, the most significant of which is the Brisbane River followed by the North and South Pine, Logan, Nerang, Coomera and Caboolture Rivers. Reviews of the physical and biological environment of the Brisbane R. and Moreton Bay catchment are available in Davie et al. (1990) and Tibbetts et al. (1998). The Brisbane R. has a major influence on turbidity and suspended sediment concentration in the bay due to the large sediment load carried during flood. The western area of the bay is characterised by fluctuating salinity and turbidity and reduced floral diversity resulting from the effects of river outflow. Sediment deposited in Moreton Bay consists of river sands and mud, primarily from the Brisbane R. and marine sand transported north by the prevailing north long shore currents of the east coast of Australia. Maxwell (1970) gives a sedimentary framework while Stephens (1992) describes the historic deposition patterns of sediments within Moreton Bay and current deposition zones. The middle of the bay, between the river delta and prodelta to the west and the sandy tidal deltas to the east and north-east, is

essentially a non-depositional area with virtually no sediment cover.

There is very limited potential for the penetration of swell from the Pacific Ocean due to sheltering by Moreton and Stradbroke Is. Prevailing winds are from the south-east, however west to south-west winds are common during winter and north-east winds predominate on summer afternoons. Wind speed rarely exceeds 40 kph. Wave heights build rapidly according to wind strength but also drop quickly as winds abate. An outline of tidal current patterns has been undertaken by Patterson & Witt (1992). Tidal range inside the bay is more than 20 percent greater than that in areas of close proximity outside. Tides are semi-diurnal with a range of 1.8m at mean high water neap to a mean high water spring of 2.2m at the Brisbane bar. Highest annual tides in Moreton Bay rarely exceed 2.7m (Australian National Tide Tables, 1999). Maximum water depth has been recorded on admiralty charts to 44m at low water datum in very localised holes. However, the depth of these holes appear to vary over time and recent soundings were no greater than 34m. Depths along the east channel are largely from 20 to 28m while in the central part of the bay depths from 10 to 15m are prevalent. The bay begins to narrow markedly to the south of Peel Island and the bathymetric profile consists generally of broad shallow tidal banks interposed by a series of steeply shelving channels of 10 to 25m with very isolated holes in excess of 30m.

CLIMATE AND HABITAT

Long term diurnal ambient temperature ranges (minimum/maximum) average between 20.9 and 29.9°C in January/February and between 9.4 and 20.6°C in July at Brisbane airport (27°25'S 153°05'E). At Cape Moreton (27°02'S 153°28'E) these ranges are narrower, varying from 21.9 to 26.6°C in January/February and 12.9 to 18.7°C in July. Average sea surface temperatures in Moreton Bay range from 16°C in winter to 26°C in summer. As with ambient readings, sea temperatures immediately outside the bay fluctuate less and have a considerably more restricted range. Average annual rainfall figures are 1,213mm at Brisbane airport and 1,566mm at Cape Moreton, with the highest and lowest monthly totals during February/March and September, respectively (Anon., 1988). Salinity is greatly affected by localised freshwater runoff from estuaries, but in areas subject to

oceanic influence, it remains relatively stable at about 35ppt.

The main habitats of fishes in Moreton Bay involve mangroves, seagrass meadows, littoral red laterite reef, littoral and sublittoral sandstone reef, subtidal mudstone ledges, shelly algal and sponge beds, fringing coral reef and various grades of generally bare sandy to muddy substrates. The latter substrate types broadly include fine mud, silty sand, shelly sand and clean marine sand (Maxwell, 1970). They occur extensively throughout the bay subtidally and as flats littorally. Man-made structures such as basalt rock breakwaters and retaining walls, as well as artificial reefs constructed of ships, barges, cars and tyres, have attracted species in abundance to sites where they were previously poorly represented or absent (Wright, 1990). As important refugia, they must now be included among the major habitat types. The Southport seaway includes rock breakwaters that are exposed to limited incursion of ocean swell and the only high energy surf areas inside Moreton Bay. A review of fisheries habitats throughout Queensland is available in Zeller (1998).

In the saltmarsh and claypan areas of Moreton Bay and the upper tidal inlets that drain them, fish species diversity is low relative to adjacent mangroves and the abundance of individual species fluctuates widely on a seasonal basis (Morton et al., 1987, 1988; Mousalli & Connolly, 1998). Over a 12 month period on Coomera Island only 8 species were recorded from saltmarsh and 19 species of mostly juvenile fishes from an upper drainage inlet. However, these areas are vast, totalling almost 5,000ha throughout Moreton Bay (Hyland & Butler, 1988) and are important feeding grounds for some species (Morton et al., 1987). One gobiid species, *Calamiana* sp., is only known in Moreton Bay from saltmarsh. McLeod (1969) provides a detailed study of the saltmarsh vegetation of Moreton Bay. Approximately 15 percent of high tides inundate these habitats annually. Fishes most commonly found in these areas include gobiids, juvenile mugilids, ambassids and blue-eyes, *Pseudomugil signifer*.

Mangrove forests are prominent in the western and southern areas of Moreton Bay. The region has one of the most highly developed mangrove communities along the Australian east coast in terms of species numbers and structural complexity (Hutchings & Saenger, 1987). Seven mangrove species occur in the area, with

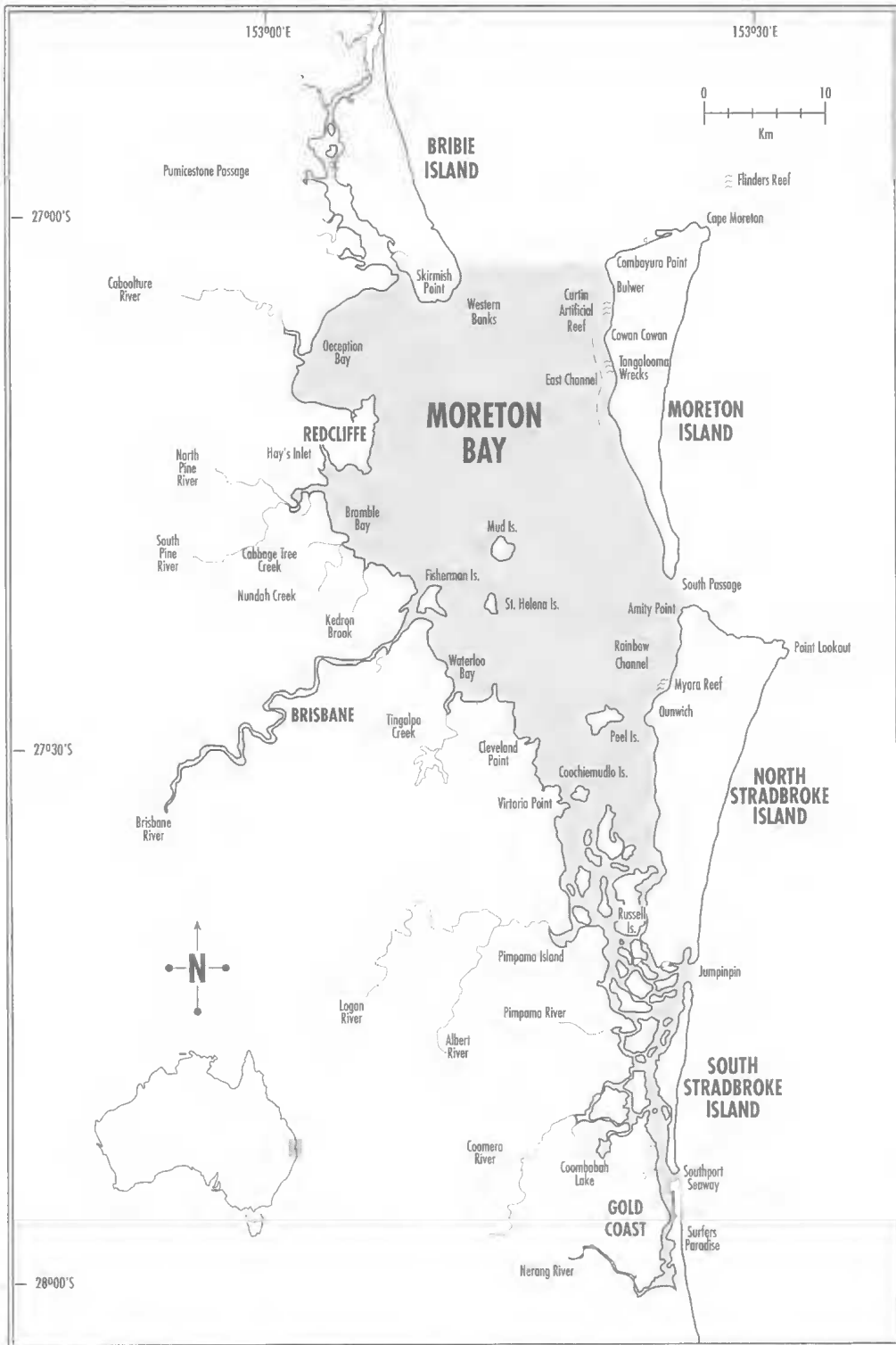


FIG. 1. Moreton Bay region with study area shaded.

Avicennia marina dominant (Hyland & Butler, 1988). Williams (1992) estimates that a total of 13,000ha of mangrove forest exist in Moreton Bay, but includes Pumicestone Passage (to Caloundra) in this area. Apart from acting as an important nursery area for juvenile fishes (Morton, 1990; Laegdsgaard & Johnson, 1995), mangroves are a conduit for nutrient inflow to the estuary and adjacent marine environment from the intertidal wetlands (Davie, 1992; Abal et al., 1998). While fishes including engraulids, ambassids, sillaginids, sparids, mugilids and tetraodontids are common in mangrove channels and move among the pneumatophores and prop-roots tidally, some blenniids and gobiids also occur as infauna to the mangrove trees and inhabit small pools and burrows, extending to the supralittoral zone. In examining fish communities in foreshore mangroves at Lota Creek, Moreton Bay, Morton (1990) found that standing crop estimates for fishes among the mangroves were among the highest recorded for an estuarine area in Australia. An analysis of density, biomass and species composition of intertidal mangrove fishes for the near northern Tin Can Bay is given by Halliday & Young (1996).

Seagrass communities of Moreton Bay have been described by Young & Kirkman (1975), Kirkman (1975, 1976) and Abal et al. (1998). Surveys carried out by Hyland et al. (1989) found there were 12,469ha of seagrass meadows and 10,282ha of sparse or patchy seagrass cover in Moreton Bay between the Southport Broadwater and Toorbul Point. Seven species of seagrasses have been recorded, with *Zostera capricorni* predominating. In southern Moreton Bay there is a strong east-west correlation between seagrass depth range and water quality (Abal & Dennison, 1996). Evidence suggests changes in water quality may have caused reductions in seagrass distribution and depth penetration, particularly in the landward part of this area. Seagrass beds are known to vary considerably in extent over time. Extreme flooding in 1974 led to the loss of large areas of seagrass in the Southport broadwater and western Moreton Bay; however by 1980 these areas had largely regenerated (Forbes, 1984). Poiner (1984) evaluated the long term stability of seagrass beds off North Stradbroke I. using aerial photographs. The importance of seagrass and associated epiphytes, microfauna and detritus in providing food and shelter for fishes, prawns and numerous other marine organisms and in stabilising bottom sediments is well known (Poiner et al., 1992; Moriarty et al., 1984; Pollard,

1984). Assemblages of fishes in association with seagrass and bare sand habitat across a wide area of northern New South Wales were sampled, quantified and compared by Gray et al., (1996). In Moreton Bay, hemirhamphids, syngnathids, scorpaenids, teraponids, apogonids, girellids, blenniids, gobiids, siganids, monacanthids and many other fishes are often found in close association with seagrass. Although surveys of the macroalgal communities of Moreton Bay are incomplete, species diversity is high with the area containing at least 275 species, or about 40% of those known from Queensland waters (Phillips, 1998). Little is known of the relationships between fish assemblages and subtropical macroalgae, but the species composition of fish collections from weed beds and adjacent habitats in Moreton Bay indicates that most associations are loose and probably more closely related to the underlying substrate. Several species, including frogfish *Batrachomoeus dubius*, parrotfish *Leptoscarus vaigiensis* and wobbegongs *Orectolobus* spp., were often collected or observed amongst thick algal growth in this area. The predominantly temperate families Odacidae, Clinidae and Gobiessocidae are strongly associated with algae, but are rare in Moreton Bay.

Stands of live coral are now relatively limited and patchy in Moreton Bay, occurring from Mud I. south to Macleay I. and along the mainland coast between Wellington Pt and Point Halloran (Johnson & Neil, 1998). Extensive coralline deposits are present in the substratum however, indicating that coral presence in Moreton Bay today represents a reduction in species diversity and change in dominance from a prior period of greater richness and abundance (Lovell, 1989). Communities were dominated by corals typically associated with low wave action and clear water such as *Acropora*, *Pocillopora* and *Stylophora*. Most modern assemblages, such as those at the northwestern side of Peel I., are dominated by *Favia speciosa* and others of massive form that are more robust and able to tolerate higher levels of sediment cover and lower light penetration. Harrison et al. (1991, 1998) record 42 coral species from Moreton Bay. Myora Reef has the highest diversity (16 species) while Myora and Peel and Goat Is. have the greatest overall coral coverage of reefs in Moreton Bay (Harrison et al., 1998; Johnson & Neil, 1998). The corals of Moreton Bay include species typically associated with tropical, subtropical and temperate waters and could thus be considered to be transitional communities. Clearer oceanic conditions in

adjacent waters support richer more diverse coral communities. Scleractinian coral species to the north number 119 at nearby Flinders Reef (26°59'S), 77 at Mudjimba I. and Gneering Shoals (26°37' - 26°41'S) and 244 on the southern Great Barrier Reef (Veron, 1995; Banks & Harriot, 1995; Harrison et al., 1998). To the south, 90 species have been recorded from the Solitary Islands (29°55' - 30°01'S) (Harriot et al., 1994) and 83 from Lord Howe I. (31°29' - 31°36'S) (Harriot, et al., 1995). Lovell (1989) found that of the 25 fringing reefs existing in Moreton Bay before a major flood in 1974, 15 were killed by that flood. After seven years only a single reef had regenerated to a form close to its original composition. The dynamic nature of most coral communities in the bay has undoubtedly been paralleled by an ebb and flow of fish species associated with those corals. The unique, largely monospecific *Acropora digitifera* assemblage at Myora has been mostly unaffected by recent floods, possibly through the input and pooling of oceanic water from the South Passage (Stephenson, 1968; Lovell, 1989) and supports a fish fauna (especially chaetodontids) largely absent from the remainder of Moreton Bay. Rock retaining walls constructed at Amity Point have provided a base for some sparse coral growth previously absent on the current swept sandy substrate and have attracted many species of fishes.

FISHERIES

Moreton Bay has long been exploited by both recreational and commercial fishers. By the mid 1860's the total commercial fish catch was estimated at 330 tonnes and by 1911 the Brisbane Metropolitan Fish Market had a throughput of about 820 tonnes (Anon., 1997a). During the three years to 1991 the average annual catch marketed was about 1600 tonnes (Quinn, 1992). Unfortunately, long term catch statistics are difficult to compare due to variation in the methods of collection of data (until 1988) and non-inclusion of 'black market' catches, which are reported to have been significant particularly during the 1970's and 1980's (Quinn, 1992). Williams (1992) estimated that about 1000 full time commercial fishers in the Moreton Bay region (including the ocean beaches and adjacent waters) took approximately 10% by value and 16% by weight of the seafood catch of Queensland. About half of this catch was fish. Commercial catches of bream, flathead, mullet,

tailor and whiting from Moreton Bay comprise between 35 and 60 percent of the total for Queensland. Although data is limited, recreational catches of all these species, except mullet, are estimated to be comparable with or exceed those of licenced commercial fishers (Quinn, 1992). Otter trawling in Moreton Bay commenced in 1952 and by 1967 about 250 boats were operating at the peak of the season. An early attempt to quantify the catch and catch rates of trawlers in Moreton Bay by Maclean (1973) showed little change between the 1966-67 season and the inception of the fishery. In 1992 Williams found that about 200 trawlers operated in the region, although some for only part of the year. Their catch was estimated at about 41% by weight of the total production for Moreton Bay. Although 85 percent of this landed catch was prawn, large quantities of fish were present in the discarded bycatch. Measures are currently being implemented to encourage the incorporation of bycatch reduction devices into trawl nets, with the intention of reducing the catch of non-target species (both fishes and invertebrates) and preserving their populations. Recent information suggests that the commercial fishery in Moreton Bay is experiencing declines in total catch, stability of catch rates and decreasing numbers of commercial operators. Over the past two decades there has been a significant decline to about 800 commercial operators. With a surrounding human population of over 1.5 million, Moreton Bay makes up less than 3% of the Queensland coastline but absorbs about 30% of the recreational fishing effort and now produces about 13% by weight of Queensland's commercial catch (Anon., 1997a). The activities of about 15 currently licenced aquarium fish collectors operating within the bay are largely centred around the fringing coral reefs of Peel, Bird and Goat Islands, Myora and scattered reefs along the edge of the Rainbow Channel between Dunwich and Amity Point.

ENVIRONMENTAL CHANGES

An environmental history of Moreton Bay and its catchment is presented by Neil (1998). Medium to long term changes in the physical and biological environment and in water quality have been noted for parts of Moreton Bay. Personal observations (1972 to present) and anecdotal evidence from 1959 onward suggest a significant accumulation of fine muddy sediments off the Redcliffe Peninsula over this time. This area has

been recognised as a 'hot spot' of high nutrient load, low tidal circulation and declining water quality (Anon., 1997b). Inshore turbidity here was once consistently low, except when strong winds created turbulent conditions, and quickly returned to low levels after winds abated. Around the inshore reefs underwater visibility averaged 5 to 6m throughout the year during light weather. In more recent years sediments have been mobilised by relatively light winds and despite clearer prevailing conditions in the winter months, underwater visibility has rarely exceeded 3m and probably has averaged less than 2m, even in calm conditions. Increased phytoplankton concentrations, spurred primarily by high nitrogen levels, have also lowered light penetration in the water column, causing changes in benthic floral communities. Algal blooms have been reported, particularly during the warmer months after heavy rains. The increasing sediment and nutrient loads borne by this area are more than likely a consequence of rapid urban development and population growth within the surrounding catchment (Skinner et al., 1998) and the resultant increased throughput of nutrient enriched sewage effluent from wastewater plants servicing the northern suburbs of Brisbane, Pine Rivers and Redcliffe. A decline in water quality and habitats broadly across western Moreton Bay and algal blooms in Deception Bay, Bramble Bay and Hayes Inlet have been reported (Abal & Dennison, 1996; Anon., 1997b; Abal et al., 1998; Gabric et al., 1998). Gabric et al. (1998) undertook a two year survey of the water quality of Moreton Bay using in situ studies backed by satellite imagery to describe spatial and temporal variability and the level of eutrophication. Their results confirm a strong east-west gradient in chlorophyll α and water clarity. They found that although tidal intrusion of oceanic water mitigates the impact of high nutrient load in eastern parts of the bay, there is insufficient tidal flushing in the western part of the bay to prevent significant degradation and eutrophication. There are estimates of massive increases in chlorophyll α concentrations over the long term in response to predicted population increase and land use intensification (McEwan et al., 1998). Corresponding with the deterioration in water quality, long term changes in algal, mollusc and fish communities have also been observed, particularly on the littoral and inshore reefs of the Redcliffe Peninsula. Although the once abundant sargassum *Sargassum flavicans* remains

common in pockets, filamentous and red algae appear to be increasingly predominant. Many macroalgal species are known to respond either positively or negatively to changes in water quality. Unfortunately the macroalgae of Moreton Bay are poorly known, and to recognise water quality induced changes in communities that are naturally dynamic, more detailed baseline knowledge of natural spatial and temporal variability and relative abundance of species is required (Phillips, 1998). The commercial oyster *Saccostrea commercialis*, once abundant littorally on the red laterite reef of the Redcliffe Peninsula, has almost completely disappeared. Stress caused by high turbidity, sedimentation and/or poor water quality has possibly rendered it more susceptible to infection by the protozoan parasite responsible for QX disease. The decline in oyster populations has been paralleled by an increase in numbers of the hairy mussel *Trichomya hirsutus*. Algal feeding fishes such as Luderick *Girella tricuspidata* and Magpie Morwong *Cheilodactylus vestitus*, once regularly observed in large numbers off Redcliffe, are now very poorly represented in the area. Although a marked fall in observed numbers of some other fish species may arguably be attributable to fishing activity, these species are subject to minimal fishing pressure in the area and remain relatively common in some other parts of Moreton Bay, indicating that the decline in their populations may have resulted from localised environmental and water quality changes.

II HISTORY OF ICHTHYOLOGICAL RESEARCH

Historically, the Queensland Museum has been intimately involved in the documentation of fish fauna in Moreton Bay. It has acted as a repository for numerous specimens taken in the region by both serious collectors and curious fishermen. From his appointment to the QM in 1882 until 1911, Charles de Vis wrote descriptions of 194 new species of fishes (Ingram, 1990), many of which were collected in Moreton Bay. Many of his descriptions were inaccurate, however, and most have been placed into synonymy. James Ogilby also contributed numerous papers, during both his capacity as honorary curator of the Amateur Fishermen's Association of Queensland (1905-1912) and his tenure at the QM between 1912 and 1920. Most of Ogilby's type specimens that had been lodged in the collections of the Amateur Fishermen's Association were

later transferred to the QM. Many of these fishes were taken by AFAQ members and associates in Moreton Bay. Ogilby (1916a) produced a list of fishes from Queensland waters, with some references to Moreton Bay; however this only progressed taxonomically to the family Clupeidae. McCulloch & Whitley (1925) also published a list pertaining to Queensland waters that made mention of 310 species from Moreton Bay. The number of species in this list however, is not reflective of numbers present as it contains many synonymous species, nomen nuda and probable misidentifications. Tom Marshall was employed at the QM primarily as an artificer and modeller from 1912 to 1942, however during this time as well as his tenure at the Department of Harbours and Marine as Assistant Chief Inspector of Fisheries and Government Ichthyologist (1942-1962), he produced a series of ichthyological notes reporting new records of fishes from Queensland. Among these Marshall (1925, 1928, 1941, 1951, 1953, 1957) reported 29 species previously unknown from Moreton Bay. In 1964 he provided a useful guide to the fishes of Queensland, but distributions given were generalised and only scant reference was made of Moreton Bay.

Macleay (1973) documented fishes taken at night from 7 hours 45 minutes of commercial otter trawling near Mud Island in 1966. His list unfortunately aggregates many taxa into generic groupings. Stephenson & Dredge (1976) and Quinn (1980) conducted analyses of estuarine fish assemblages in Serpentine Creek, near the Brisbane R. mouth, recording 42 species. Surveys by Young & Wadley (1979) using a small mesh one metre wide beam trawl yielded an array of 87 species that included numerous small species (especially gobiids) not obtained by other surveys employing larger gear. Blaber & Blaber (1980) studied factors affecting the distribution patterns of 25 species of estuarine and inshore fishes from 4 sites throughout Moreton Bay, each representing different habitat types. They recorded one species, *Hyporhamphus dussumieri* from Koorinal, South Passage, the occurrence of which was not verified by this study. Demersal fishes were sampled, using commercial prawn trawling gear, by Stephenson & Burgess (1980) and Stephenson et al. (1982a, 1982b). They listed 69 species in order of abundance but eliminated from their results additional species occurring in only one sample. Using similar gear, Weng (1988) collected 112 species at 9 sites, but listed only the 21 most common. On Coomera Island

(27°51'S), Morton et al. (1987, 1988) periodically sampled saltmarsh pools with 2mm dipnets and the inlet draining a large saltmarsh area with a small mesh fyke net. A combined total of only 24 species were collected, all of which had previously been recorded from the area. Morton (1990) used extensive 18mm block nets and seines to sample tidal mangroves at the mouth of Lota and Tingalpa Creeks. He recorded 42 species, two of which are poorly known in the region. Weng (1990) reported the capture of 86 species from beam trawl surveys of five shallow inshore sites in northwestern Moreton Bay, but only listed the 29 most common species. McKay & Johnson (1990) gave a historical account of the fishes of the Brisbane R., including a checklist of 127 marine and estuarine species. They provided comments on relative abundance both within the river and in Moreton Bay. In comparing juvenile fish communities among mangrove forests, seagrass beds and mudflats in two estuaries of Moreton Bay, Laegdsgaard & Johnson (1995) identified 45 species. Of these, *Spratelloides gracilis* (Schlegel) is almost certainly a misidentification and is excluded here. Intertidal rocky shore fish assemblages from three sites within Moreton Bay were contrasted with two nearby exposed sites outside the bay by Tibbetts et al. (1998). They recorded 13 species from the Moreton Bay sites, two of which (*Paranchelyurus hepburni* and *Bathygobius fuscus*) were previously unknown from the area. The latter species appears from QM surveys to be restricted to waters north from Hervey Bay (25°15'S) and the record is regarded here as a misidentification of *B. krefftii*, a common species which was not recorded in their study. Locally, *Bathygobius krefftii* is abundant in sheltered intertidal rocky and weedy habitats, while *B. cocosensis* is common among wave exposed rock platforms and headlands and *B. laddi* is known from shallow subtidal reefs. Tibbetts & Connolly (1998) reviewed available biological data on the nekton of Moreton Bay and assessed ecological patterns and processes within fish communities and current human impacts. Davie & Hooper (1998), using Queensland Museum database records from Moreton Bay, found a distinct western estuarine-inshore versus eastern marine reefal dichotomy in fish diversity from the distribution patterns.

The checklist presented here adds significantly to the recorded fish fauna of Moreton Bay, expanding the total to 750 species. Selective

comments on relative abundance, range and taxonomic problems are also given.

METHODS

The fishes listed are those recorded from within Moreton Bay (Fig. 1), the water body to the west of Moreton and Stradbroke Islands, from Comboyuro Point (27°04'S) to the Nerang R. mouth, near Southport (27°59'S). Most records are based on specimens held in the collection of the Queensland Museum. Several, however, are from specimens in the Australian Museum (Sydney) and literature records and 57 are from the author's sight records or personal observations. One record is based on sightings by Barry Hutchins (Curator of Fishes, WAM). Larval fishes were not sampled as part of this study and do not form the basis of any of the records. Where records are not based on registered museum specimens the basis for inclusion is clearly denoted. As it is anticipated that this list is incomplete, collectors of species that constitute additional records are encouraged to lodge voucher specimens in the collection of the Queensland Museum.

Efforts were made to sample or make observations throughout the bay in all habitat types with a wide variety of gear, to enhance coverage. Many specimens came from prior unpublished surveys and miscellaneous donations lodged with the QM. Previous identifications were verified wherever possible. Existing demersal trawl survey material was considered to provide good coverage. QM collections contained fishes taken on otter and beam trawlers by professional collectors and interested trawler operators over many years and species numbers well exceeded those documented by the detailed surveys of Stephenson & Burgess (1980) and Stephenson et al. (1982a, 1982b). Numerous scuba dives were undertaken for underwater visual surveys, collection by spear and rotenone stations. Seine nets of various mesh sizes were employed on tidal flats, beaches and estuarine mudbanks and rotenone was applied in some mangrove creeks and littoral reefs. Dredging with a 1.2m sled fitted with 2mm mesh was carried out to sample small fishes associated with subtidal soft bottom areas in estuarine channels, over seagrass beds and around offshore subtidal sandbanks.

Relative abundance was based on a combination of indicators, including numbers of specimen lots in museum collections and the frequency a species was collected or observed in

the field by the author. It is presented according to the following criteria: rare – 1 to 4 records, uncommon – 5 to 9 records, common – 10 to 100 records and abundant – more than 100 records. In general, an observation of a shoal of schooling fish was regarded as a single rather than multiple record of the species. Where species are classed as 'uncommon (or rare) inside Moreton Bay' their abundance was perceived to be relatively greater in adjacent waters immediately outside Moreton Bay. The term 'locally common' is used where species are known to occur commonly in Moreton Bay only at the locations specifically cited. Northern and southern records refer to the end point of distribution on the east coast of Australia, unless stated otherwise. Species that have their coastal southern limit in Moreton Bay, but occur further south in offshore Australian waters at Middleton Reef, Elizabeth Reef, Lord Howe Island or Norfolk Island are so indicated, but retained here in species totals for southern records. Where no distributional limits are given, Moreton Bay falls wholly within the known range of the species. In some cases new extensions of range beyond Moreton Bay are recognised. Worldwide geographic range for each species is briefly summarised. Museum registration numbers are given for species regarded as rare, for voucher specimens of undescribed or indeterminate species and for specimens representing extensions of range.

The checklist generally follows the classification of Paxton et al. (1989). Some comments are given for clarification where current taxonomic problems exist or have been identified. The following abbreviations are used for institutions: AMS, Australian Museum, Sydney; ANSP, Academy of Natural Sciences, Philadelphia; CAS, California Academy of Sciences, San Francisco; USNM, National Museum of Natural History, Washington; NMV, Museum Victoria, Melbourne; NTM, Northern Territory Museum, Darwin; QM, Queensland Museum, Brisbane; WAM, Western Australian Museum, Perth.

THE FISHES OF MORETON BAY

DASYATIDIDAE

Dasyatis kuhlii (Müller & Henle, 1841)
Abundant. Tropical Indo-west Pacific.

Dasyatis fluviorum Ogilby, 1908
Common. Subtropical eastern Australia.

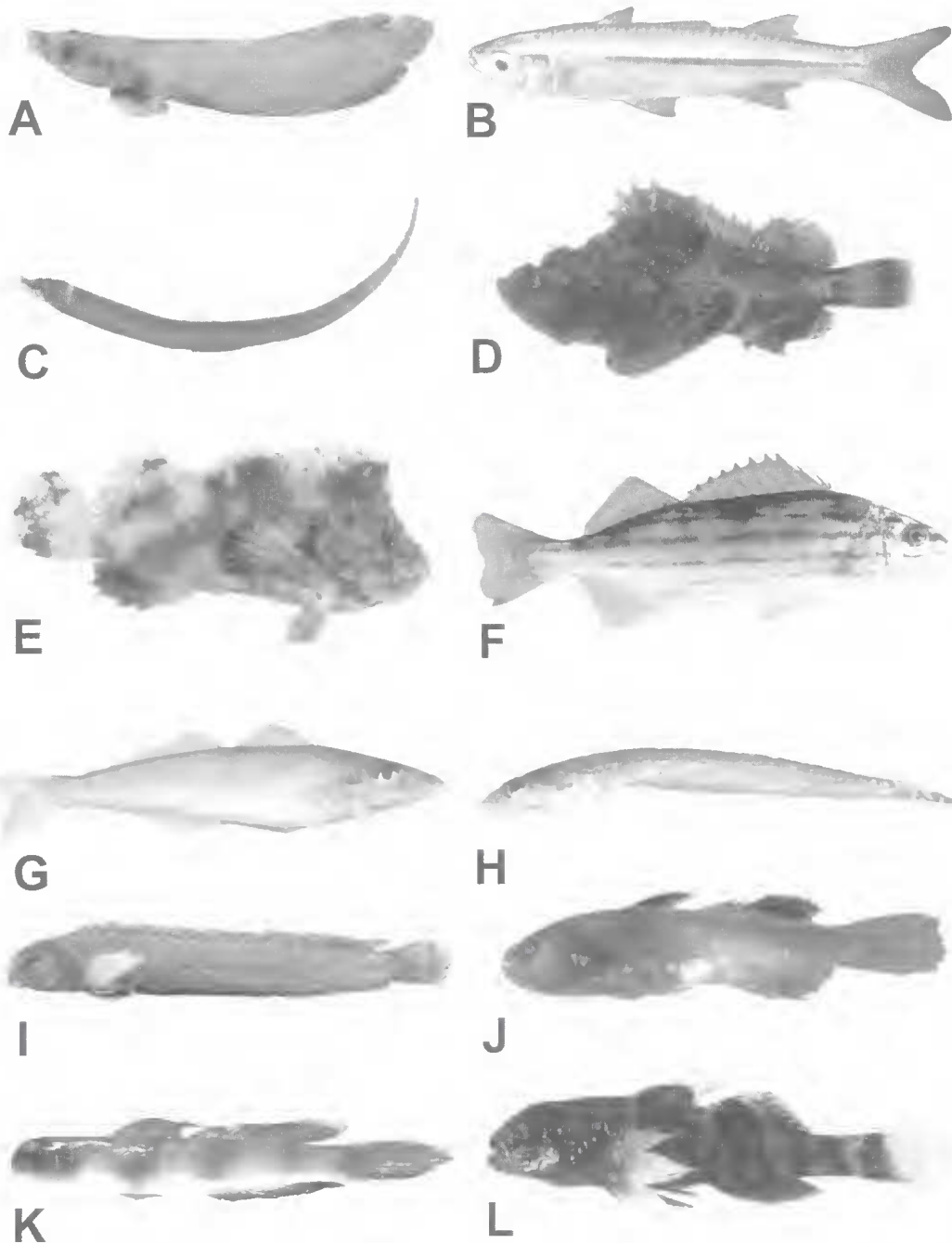


FIG. 2. Some new records of rare fishes from Moreton Bay. A. *Lepadichthys frenatus*, Tangalooma Wrecks. B. *Craterocephalus mugiloides*, Cabbage Tree Ck mouth. C. *Cosmocampus howensis*, Southport seaway. D. *Scorpaenopsis gibbosa*, Myora Reef. E. *Cocotropus* sp., Southport seaway. F. *Helotes sexlineatus*, Manly. G. *Sillago ingenuua*, Pearl Channel. H. *Matsubaraea fusiforme*, Western Banks. I. *Laiphognathus multimaculatus*, Amity Point. J. *Austrolethops wardi*, Dunwich. K. ?*Cryptocentrus* sp., Tangalooma Point. L. *Butis koilomatodon*, Nundah Ck.

Himantura fai Jordan & Seale, 1906

Rare. Reported from Stradbroke I. by Last & Stevens (1994: 401). Southern limit. Tropical Australia to Micronesia.

Himantura granulata (Macleay, 1883)

Rare. Reported by Last & Stevens (1994: 402). Southern limit. Tropical W Pacific and N Australia to Indonesia.

Himantura sp.

Common. Reported as *Himantura* sp. A by Last & Stevens (1994: 398). Southern limit. Northeastern Australia to Darwin.

Himantura uarnak (Forsskål, 1775)

Common. Southern limit. Tropical Indo-west Pacific.

Pastinachus sephen (Forsskål, 1775)

Common. Tropical Indo-west Pacific.

Taeniura meyeni Müller & Henle, 1841

Uncommon. Sight records from Amity Pt and Curtin Artificial Reef. Southern record (excluding Lord Howe and Norfolk I. (Francis, 1993)). Tropical Indo-west Pacific.

GYMNURIDAE

Gymnura australis (Ramsay & Ogilby, 1886)

Common. Tropical Australia.

UROLOPHIDAE

Trygonoptera testacea (Müller & Henle, 1841)

Abundant. Southeastern Australia.

MYLIOBATIDIDAE

Aetobatus narinari (Euphrasen, 1790)

Abundant. Circumtropical.

Myliobatis australis Macleay, 1881

Uncommon. Reported by Last and Stevens (1994) as northern limit. Southern Australia.

Myliobatis hamlyni Ogilby, 1911

Rare. Known in Moreton Bay only from the holotype, whose location was considered by Paxton et al. (1989: 49) to be unknown. As concluded by Whitley (1939), QMI1567 is likely to be the type, as the registration date (Oct. 1913) is close to Ogilby's stated collection date and there are no other examples of the genus in the

QM. The specimen, however, is labelled Cape Moreton and is slightly smaller (271mm vs 280mm disc width). Elsewhere, recorded from off Cape Moreton (27°02'S) and Forestier I., WA. Tropical Australia.

RHINOPTERIDAE

Rhinoptera neglecta Ogilby, 1912

Uncommon. Tropical to subtropical eastern Australia.

MOBULIDAE

Manta birostris (Donndorff, 1798)

Uncommon inside Moreton Bay. Sight records only. Circumtropical.

Mobula eregoodootenkee (Cuvier, 1829)

Rare. Reported south to Townsville by Last & Stevens (1994: 461). Two specimens (QMI3008-9) collected from Moreton Bay prior to 1918 but destroyed in 1937 were probably the basis of the record by Ogilby (1916a, 1918b). Extant specimens from 'south Qld' (QM13419) and Caloundra (26°48'S, QMI4516) were also originally identified by Ogilby. Southern record. Tropical Indo-Australian Archipelago and northern Indian Ocean.

RHINOBATIDAE

Aptychotrema rostrata (Shaw & Nodder, 1794)

Abundant. Warm temperate to subtropical eastern Australia.

Rhinobatos typus Bennett, 1830

Common. Tropical east Indo-west Pacific.

RHYNCHOBATIDAE

Rhina ancylostoma Bloch & Schneider, 1801

Uncommon. Tropical Indo-west Pacific.

Rhynchobatus djiddeusis (Forsskål, 1775)

Common. Tropical Indo-west Pacific.

PRISTIDAE

Pristis zijsron Bleeker, 1851

Rare. Highly susceptible to gill netting and trawling, it is now rare in most areas heavily fished. No reports from this area have been received since the 1960s. Tropical Indo-west Pacific.

TORPEDINIDAE

Hypnos monopterygium (Shaw & Nodder, 1795)
Uncommon inside Moreton Bay. Extends north to Mooloolaba (26°41'S, QM127498). Temperate to subtropical southeastern and Western Australia.

ODONTASPIDIDAE

Carcharias taurus Rafinesque, 1810
Uncommon inside Moreton Bay. Temperate to subtropical circumglobal, except eastern Pacific.

LAMNIDAE

Carcharodon carcharias (Linnaeus, 1758)
Common. Found inside Moreton Bay mainly from May to September. Specimens to 4.5 m total length have been confirmed. Temperate to subtropical circumglobal.

Isurus oxyrinchus Rafinesque, 1810
Uncommon inside Moreton Bay. Circumglobal.

ALOPIIDAE

Alopias vulpinus (Bonnaterre, 1788)
Rare inside Moreton Bay. Reported by Ogilby (1916a). Occasionally sighted off Pt Lookout, Stradbroke I. Northern record. Circumglobal, mainly in temperate and subtropical seas.

TRIAKIDAE

Galeorhinus galeus (Linnaeus, 1758)
Rare. Reported from Moreton Bay by Ogilby (1908), Marshall (1964) and Last & Stevens (1994: 208). Impossible to verify as only known specimens (QM17821-2) have been destroyed. Northern limit. Southern Australia, eastern Pacific, southern and western-north Atlantic.

Mustelus antarcticus Günther, 1870
Uncommon inside Moreton Bay. Temperate to subtropical Australia.

HEMIGALEIDAE

Hemigaleus microstomus Bleeker, 1852
Common. Tropical east Indo-west Pacific.

CARCHARHINIDAE

Carcharhinus brachyurus (Günther, 1870)
Uncommon. Two specimens (QM17976-7) removed from a female taken at Tangalooma and a verified photograph of a 2.8m specimen caught at Bulwer by L. Higgs in 1996. Previously recorded north to Coffs Harbour (Last & Stevens, 1994: 236). Northern record. Unconfirmed reports extend north to Scarness beach, Hervey Bay (25°17'S). Circumglobal, in most temperate and subtropical seas.

Carcharhinus brevipinna (Müller & Henle, 1839)
Abundant. Tropical to warm temperate circumglobal, except eastern Pacific.

Carcharhinus leucas (Valenciennes, 1839)
Common in estuaries and inshore waters. Penetrates upstream to freshwater in the Brisbane R. Circumtropical.

Carcharhinus liubatus (Valenciennes, 1839)
Common. Circumtropical.

Carcharhinus melanopterus (Quoy & Gaimard, 1824)

Doubtful record. Last & Stevens (1994: 251) follow Ogilby (1908b; 1916a) and report Moreton Bay as southern limit. Ogilby's records, however, were from snapper banks, outside Moreton Bay and were almost certainly a misidentification of another *Carcharhinus* species. Ogilby retained no voucher specimens and is reported by Whitley (1934) to have given a length of 10 feet for *C. melanopterus*, much larger than the 140 cm Australian maximum accepted by Last & Stevens (1994). Occurrence south of the Capricorn-Bunker group not verified. Tropical central and Indo-west Pacific.

Carcharhinus obscurus (Lesueur, 1818)
Common. Circumglobal.

Carcharhinus plumbeus (Nardo, 1827)
Common. Circumglobal.

Carcharhinus sorrah (Valenciennes, 1839)
Abundant. Reported south to Gladstone (Last & Stevens, 1994: 255). Personal observations (1978-92) indicated that this was easily the most common carcharhinid species in Moreton Bay. Specimens (including late term pregnant females) were commonly taken from October to

April in Moreton Bay. Southern record QMI-14073. Tropical Indo-west Pacific.

Galeocerdo cuvier (Péron & Lesueur, 1822)
Common. Circumtropical.

Loxodon macrorhinus Müller & Henle, 1839
Rare. Southern record QMI5166. Tropical Indo-west Pacific.

Negaprion acutidens (Rüppell, 1837)
Common. Southern record QMI8254, from Southport. Tropical central and Indo-west Pacific.

Rhizoprionodon acutus (Rüppell, 1837)
Common. Southern record QMI14071-2. Tropical Indo-west Pacific and eastern Atlantic.

Rhizoprionodon taylori (Ogilby, 1915)
Common. Southern record QMI14909. Tropical Australia.

SPHYRNIDAE

Sphyrna lewini (Griffith & Smith, 1834)
Abundant. Record of *S. zygaena* (Linnaeus, 1758) from Moreton Bay by McCulloch & Whitley (1926) was probably a misidentification of this species. Northern limit of *S. zygaena* reported by Last and Stevens (1994: 276) is near Coffs Harbour, NSW (33°00'S). Circumglobal in tropical to warm temperate seas.

Sphyrna mokarran (Rüppell, 1837)
Rare inside Moreton Bay. Only record a verified photograph of a 3.6m specimen taken at Bulwer by S. Goleby on 5/1/1995. Circumtropical.

ORECTOLOBIDAE

Brachaelurus colcloughi Ogilby, 1908
Common. Patchy distribution between Coolangatta (28°10'S) and off Gladstone (23°26'S) and off Cape York Peninsula (Last & Stevens, 1994: 123). Relatively rare outside Moreton Bay region. Subtropical Qld.

Brachaelurus waddi Bloch & Schneider, 1801
Uncommon. Reported north to Moreton Bay by Last & Stevens (1994: 124). QM records extend to Mudjimba I. (26°37'S, QMI29110). Warm temperate to subtropical eastern Australia.

Chiloscyllium punctatum Müller & Henle, 1838
Abundant. Tropical east Indo-west Pacific.

Orectolobus maculatus (Bonnaterre, 1788)
Common. Northern record QMI226. Temperate to subtropical Australia.

Orectolobus ornatus (De Vis, 1883)
Abundant. Southern and eastern Australia, to New Guinea.

Stegostoma fasciatum (Hermann, 1783)
Common. Tropical to subtropical Indo-west Pacific.

HETERODONTIDAE

Heterodontus galeatus (Günther, 1870)
Rare. Two specimens QMI4017 and QMI5104. Occurs north to near Cape Moreton (26°56'S, QMI13003). Warm temperate eastern Australia.

Heterodontus portusjacksoni (Meyer, 1793)
Rare. Recorded from Moreton Bay by Saville-Kent (1897: 193) and included by Marshall (1964), but not verified by specimens and possibly a misidentification of *H. galeatus*. Northern limit. Southern Australia.

ELOPIDAE

Elops hawaiiensis Regan, 1909
Common. Tropical central and east Indo-west Pacific.

Megalops cyprinoides (Broussonet, 1782)
Common. Tropical Indo-west Pacific.

ALBULIDAE

Albula neoguinaica Valenciennes, 1847
Uncommon inside Moreton Bay. *Albula argentea* (Forster, 1801) may be a senior synonym (Randall et al., 1997: 32). Tropical to subtropical Indo-west Pacific.

NETTASTOMATIDAE

Saureuchelys finitimus (Whitley, 1935)
Rare. Southern record QMI30249. Northeastern Australia.

OPHICHTHIDAE

Mulvoliophis pinguis (Günther, 1872)
Common. Eastern Australia to Melanesia.

Muraenichthys cf. laticaudatus (Ogilby, 1897)
Common. Six lots in QM, all collected from muddy or fine silty substrate. These specimens compare closely with *M. godeffroyi* Regan, however this is regarded as a probable junior synonym of *M. laticaudatus* by McCosker (1970). *M. laticaudatus* is reported south to Capricorn Group by Paxton et al. (1989: 118), Middleton and Elizabeth Reefs (notably as cryptic reef dweller) by Gill & Reader (1992: 195) and Lord Howe I. by Francis (1993). Differences in morphometrics and habitat preference suggest the Moreton Bay specimens may represent the southern record of a distinct species. Tropical Indo-west Pacific?

Muraenichthys macropterus Bleeker, 1857
Rare. Recorded south to Capricorn Group by Paxton et al. (1989: 118). Southern record QM130226 from Redcliffe. Tropical Indo-west Pacific.

Ophichthus episcopus Castelnau, 1878
Rare. Only known from the holotype which is reported to have been lost (Paxton et al., 1989). Moreton Bay.

Ophichthus sp.
Rare. Only record QM114562. Possibly conspecific with *O. episcopus*. Moreton Bay.

Ophisurns serpens (Linnaeus, 1758)
Rare. Paxton et al. (1989: 120) recorded Grafton (29°41'S) as northern limit. Extends to at least Noosa R. (26°24'S, QM19087). Temperate to subtropical circumglobal.

ANGUILLIDAE

Anguilla australis Richardson, 1841
Common. Usually collected in freshwater. Southeastern Australia.

Anguilla reinhardtii Steindachner, 1867
Abundant. Adults as well as migrating elvers of *Anguilla* spp. are found commonly in the lower estuary as well as in freshwater. Eastern Australia and New Caledonia.

MURAENIDAE

Echidna polyzona (Richardson, 1845)
Rare. Only records QM18964 and QM131149. Central and Indo-west Pacific.

Gymnothorax boschii (Bleeker, 1853)
Rare. Reported south to Capricorn Group by Paxton et al. (1989: 128). Two specimens. QM129260 from Tangalooma Wrecks and QM130225 from Redcliffe. Southern record. Tropical West Pacific and Indo-Malay Archipelago.

Gymnothorax cribroris Whitley, 1932
Common. Subtropical eastern Australia.

Gymnothorax eurostus (Abbott, 1860)
Locally common at Amity Pt. Tropical central and Indo-west Pacific.

Gymnothorax favaginens Bloch & Schneider, 1801
Common. Tropical Indo-west Pacific.

Gymnothorax fimbriatus (Bennett, 1832)
Rare. Reported south to Capricorn Group by Paxton et al. (1989: 129). Sight record from Tangalooma Wrecks only. Southern record. Tropical Indo-west Pacific.

Gymnothorax meleagris (Shaw & Nodder, 1795)
Doubtful record. No specimens in QM. Reported by Paxton et al. (1989: 130) as southern limit. Possibly a misidentification of *G. eurostus*. Tropical Indo-Pacific.

Gymnothorax prasinus (Richardson, 1848)
Rare. Reported north to Byron Bay by Paxton et al. (1989: 131) and southern Qld by Hutchins & Swainston (1986: 30). Northern record QM131175 from Southport seaway. Southwest Pacific, southeastern and southwestern Australia.

Gymnothorax pseudothyrsoidens (Bleeker, 1852)
Abundant. Tropical west Pacific.

Gymnothorax undulatus (Lacepède, 1803)
Rare. Reported south to Capricorn Group by Paxton et al. (1989: 132). Southern record QM130222 from Redcliffe. Tropical Indo-Pacific.

Gymnothorax sp.
Rare. Unidentified species similar to *G. cribroris* but lacking characteristic black spots on head. Known only from three specimens taken in

southern Qld. Figured in Grant (1987: pl.106a). Currently under study by E. Bohlke (ANSP) and J. McCosker (CAS). Southern record QMI5141. Southeast Qld.

Thyrsoidea macrura (Bleeker, 1854)

Uncommon. *Strophidon sathete* (Hamilton, 1822) may be a senior synonym (Randall et al., 1997: 42). Six QM specimens from Moreton Bay. Southern record QMI3360 from Coomera R. Tropical Indo-west Pacific?

CONGRIDAE

Ariosoma auago (Temminck & Schlegel, 1847)
Rare inside Moreton Bay. Only records QMI-13632 and QMI30693. Tropical east Indo-west Pacific.

Conger cinereus Rüppell, 1830

Rare. Reported south to One Tree I. by Paxton et al. (1989: 141). Southern record QMI30296 from Dunwich, excluding Elizabeth Reef (Gill & Reader, 1992: 194) and Lord Howe I. (Francis, 1993). Tropical central and Indo-west Pacific.

Conger wilsoni (Bloch and Schneider, 1801)

Uncommon. Northern record QMI29718 from Deception Bay. Temperate to subtropical west Pacific and southern Indian Ocean.

MURAENESOCIDAE

Muraenesox bagio (Hamilton, 1822)

Common. Tropical Indo-west Pacific.

CLUPEIDAE

Herklotsichthys castelnaui (Ogilby, 1897)

Abundant. Eastern Australia.

Herklotsichthys koningsbergeri (Weber & de Beaufort, 1912)

Common. Tropical to subtropical Australia.

Hyperlophus translucidus McCulloch, 1917

Abundant. Southeastern Australia.

Hyperlophus vittatus (Castelnau, 1875)

Uncommon inside Moreton Bay. Reported by Paxton et al. (1989: 155) based on AMS specimens from Southport (AMI16916) and Pt Lookout (AMI12595). Northern limit. Temperate to subtropical Australia.

Nematalosa erebi (Günther, 1868)

Abundant. Freshwater/estuarine species commonly found near Brisbane R mouth. Rivers of northern to south-central Australia and southwestern Papua New Guinea.

Sardinella gibbosa (Bleeker, 1849)

Common. Indo-west Pacific.

Sardinops sagax neopilchardus (Steindachner, 1879)

Common. Temperate to subtropical southwest Pacific and southwestern Australia.

Spratelloides delicatulus (Bennett, 1832)

Common. Reported south to One Tree I. by Paxton et al. (1989: 157). Southern record QMI31311 from Amity Pt, excluding Norfolk I. (Francis, 1993). Tropical Indo-west Pacific.

Spratelloides robustus Ogilby, 1897

Common. Subtropical to temperate southern Australia.

ENGRAULIDIDAE

Engraulis australis (White, 1790)

Common. Subtropical to temperate southwest Pacific and southwestern Australia.

Stolephorus carpentariae (De Vis, 1883)

Common. Southern record QMI26090 from Aldershots (27°51'S). Tropical to subtropical Australia.

Thryssa aestuaria (Ogilby, 1910)

Common. Often confused with *T. hamiltonii*. Tropical to subtropical Australia and New Guinea.

Thryssa hamiltonii (Gray, 1835)

Rare. Rank of twentieth in abundance of trawled fishes in Moreton Bay ascribed by Stephenson and Burgess (1980) may be a misidentification and probably should be attributed to *T. aestuaria*. Only one record, QMI248, confirmed from Brisbane R, Southern record. Tropical Indo-west Pacific.

CHIROCENTRIDAE

Chirocentrus dorab (Forsskål, 1775)

Rare. Two records only, QMI4945 and QMI8051. Southern limit. Tropical central and Indo-west Pacific.

GALAXIIDAE

Galaxias unculatus (Jenyns, 1842)

Rare. Occasional specimens taken at creek mouths on Russell and Stradbroke Is. Northern record QM128115 from Myora Ck. Adults in freshwater, larvae and juveniles pelagic marine. Temperate circumglobal, except South Africa.

GONORYNCHIDAE

Gouoryuchus greyi (Richardson, 1845)

Uncommon inside Moreton Bay. Temperate to subtropical Australia.

CHANIDAE

Chaetos chaetos (Forsskål, 1775)

Uncommon. Tropical to warm temperate central and Indo-west Pacific.

ARIIDAE

Arius graeffei Kner & Steindachner, 1866

Abundant. Tropical to subtropical Australia and New Guinea.

Arius macrocephalus Bleeker, 1846

Uncommon. Two specimens QM111502 and QM131170 from Brisbane R. Southern limit. Northern Australia and Indo-Malay Archipelago.

Arius proximus Ogilby, 1898

Common. Tropical to subtropical Australia and west Pacific.

PLOTOSIDAE

Cnidogobius macrocephalus (Valenciennes, 1840)

Uncommon. Reported from Brisbane R. by Thomson (1978). Specimen, QM130306 from Southport seaway. Northern record. Southeastern and southwestern Australia.

Euristhus lepturus (Günther, 1864)

Common. Subtropical Australia to New Guinea.

Euristhus nudiceps (Günther, 1880)

Rare. Reported from Brisbane by Paxton et al. (1989: 224) as southern limit. Record not verified and possibly a misidentification of *E. lepturus*. Tropical Australia to New Guinea.

Paruplotosus atbilabrus (Valenciennes, 1840)

Rare. Reported south to One Tree I. (23°30'S) by Paxton et al. (1989: 225). Southern record QM130220 from Redcliffe. Tropical Australia and west Pacific.

Plotosus lineatus (Thunberg, 1791)

Abundant. Tropical Indo-west Pacific.

SYNODONTIDAE

Synodus dermatogenys Fowler, 1912

Locally common at Curtin Artificial Reef. Voucher QM131005. Tropical central and Indo-west Pacific.

Trachinocephalus uyops (Forster, 1801)

Common. Atlantic and central to Indo-west Pacific.

HARPADONTIDAE

Harpadon traustuceus Saville-Kent, 1889

Uncommon. Occasional specimens taken near Brisbane and Caboolture R. mouths. Southern record QM128606. Tropical Australia to New Guinea.

Saurida gracilis Quoy & Gaimard, 1824

Uncommon inside Moreton Bay. Reported south to One Tree I. by Paxton et al. (1989: 243). Southern record QM131168 from Southport seaway, excluding Lord Howe and Norfolk I. (Francis, 1993; Francis & Randall, 1993). Tropical central and Indo-west Pacific.

Saurida tumbil (Bloch, 1795)

Common. Tropical Indo-west Pacific.

Saurida undosquamis (Richardson, 1848)

Common. Tropical Indo-west Pacific.

BATRACHOIDIDAE

Batrachomoeus dubius (White, 1790)

Common. Central eastern Australia.

Halophryste queenlandiae (De Vis, 1882)

Uncommon. Five specimens in QM. Paxton et al. (1989: 272) recorded southern limit as Brisbane R. mouth. Kuitert (1993) reported distribution as extending into NSW (South Solitary Is., Kuitert pers. comm., 1996). Ogilby (1908c) recorded *Coryzichthys* (= *Halophryste*) *diemensis* (Lesueur, 1824) as 'by no means scarce in

Moreton Bay'. *H. diemensis* is known only as far south as the Capricorn Group (23°30'S), according to Paxton et al. (1989: 272) and QM records. In accordance with Hutchins (1976), Ogilby's record of *H. diemensis* from Moreton Bay is considered a misidentification of *H. queenslandiae*. Subtropical to tropical eastern Australia.

ANTENNARIIDAE

Antenuarius coccineus (Lesson, 1830)

Rare. Only records QM1363 (holotype of *A. stigmaticus* Ogilby, 1912), QM131133 from Southport seaway and QM131350 from Amity Pt. Tropical central and Indo-west Pacific.

Antenuarius pictus (Shaw & Nodder, 1794)

Rare. Only records QM14462 from Wynnum and QM129810 from Curtin Artificial Reef. Tropical Indo-west Pacific.

Antenuarius striatus (Shaw, 1794)

Common. Tropical Indo-west Pacific.

Histrio histrio (Linnaeus, 1758)

Common. Circumtropical.

GOBIESOCIDAE

Lepadichthys fretatus Waite, 1904

Rare. Only record QM129162 from Tangalooma Wrecks (Fig. 2A). Occurs south to South Solitary Is., NSW (30°11'S, AMS122881-001) and Lord Howe and Norfolk I. (Francis, 1993). Tropical west Pacific.

EXOCOETIDAE

Cheilopogon pinnatifidus melanocephalus (Ogilby, 1885)

Common. Southwestern Pacific.

Hirundichthys oxycephalus (Bleeker, 1852)

Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Parexocoetus brachypterus (Richardson, 1846)

Rare. Southern record QM15379. Tropical Atlantic and central to Indo-west Pacific.

HEMIRHAMPHIDAE

Arrhamphus sclerolepis krefftii (Steindachner, 1867)

Abundant. Subtropical eastern Australia.

Hemiramphus robustus Günther, 1866

Common. Tropical to temperate Australia, excluding Great Australian Bight.

Hyporhamphus australis (Steindachner, 1866)

Uncommon. Northern record QM111501. South-eastern Australia.

Hyporhamphus quoyi (Valenciennes, 1847)

Common. Tropical Indo-west Pacific.

Hyporhamphus regularis ardelio (Whitley, 1931)

Abundant. Temperate and subtropical eastern Australia.

BELONIDAE

Ablennes hiatus (Valenciennes, 1846)

Uncommon inside Moreton Bay. Tropical to subtropical circumglobal.

Strongylura leiura (Bleeker, 1851)

Uncommon. Three specimens in QM. Reported by Morton (1990) from Tingalpa Ck mouth. Temperate to tropical Indo-west Pacific.

Tylosurus acis (Lacepède, 1803)

Rare inside Moreton Bay. The single record of *T. appendiculatus* (Klunzinger, 1871) reported by Marshall (1964) is probably referable to this species. Circumtropical.

Tylosurus crocodilus (Péron & Lesueur, 1821)

Rare. Reported as southern limit by Paxton et al. (1989: 343). No specimens in QM. Circumtropical.

Tylosurus gavioloides (Castelnau, 1873)

Abundant. Tropical to subtropical Australia.

PSEUDOMUGILIDAE

Pseudomugil signifer Kner, 1867

Common near mouths of most estuarine streams flowing into Moreton Bay as well as the fresh-water reaches. Tropical to warm temperate eastern Australia.

ATHERINIDAE

Craterocephalus honoriae (Ogilby, 1912)

Rare. Occurs in estuaries. Only record AMSIB-1340. Reported north to Moreton Bay by Crowley and Ivantsoff (1988). QM records extend to Noosa (26°26'S, QM123447). Temperate to subtropical eastern Australia.

Craterocephalus mugiloides (McCulloch, 1912)

Rare. Common north from Hervey Bay (25°18'S). Two records only, from Toorbul (27°04'S) and Cabbage Tree Ck mouth (Fig. 2B). Southern record QM130987. Tropical Australia.

Atherinomorinus ogilbyi (Whitley, 1930)

Abundant. Temperate to subtropical eastern and Western Australia.

Hypoatherina tropicalis (Whitley, 1948)

Locally common off the western beaches of Moreton I. Southwest Pacific.

MONOCENTRIDIDAE

Cleidopus glorianaris De Vis, 1882

Common. Temperate to subtropical Australia.

TRACHICHTHYIDAE

Optivus sp.

Rare inside Moreton Bay. Gomon et al. (1994) stated that this species is distinct from *O. elongatus* (Günther, 1859) from Lord Howe I. and New Zealand. Reported by Ogilby (1912) based on one specimen, QM1782 trawled in 1889. Frequently trawled in deep water off Cape Moreton. Occurs north to off Noosa (26°23'S, QM130344). Southeastern Australia.

Trachichthys australis Shaw, 1799

Rare. One specimen collected in 1912 by Ogilby at Pimpama I. Northern record QM1663. Temperate Australia.

BERYCIDAE

Centroberyx affinis (Günther, 1859)

Rare inside Moreton Bay. One specimen, QM14921 collected in 1932. Common in deeper water east of Cape Moreton. Reported north to Moreton Bay by Paxton et al. (1989: 375). Extends to at least Fraser I. (25°27'S, QM19340). Temperate Australia and southwest Pacific.

HOLOCENTRIDAE

Myripristis berudti Jordan & Evermann, 1903

Locally common at Comboyuro Pt but not recorded elsewhere inside Moreton Bay. Specimens from southern Qld and New South Wales are more melanistic and differ slightly in a number of characters from other populations of this species (Randall & Greenfield, 1996). Very closely related to and often misidentified as *M. murdjan* (Forsskål, 1775). Voucher QM131007. Tropical central and Indo-west Pacific.

Sargoceutron diadema (Lacepède, 1802)

Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Sargoceutron rubrum (Forsskål, 1775)

Uncommon inside Moreton Bay. Specimens from Comboyuro Pt and Myora. Tropical central and Indo-west Pacific.

ZEIDAE

Zeus faber Linnaeus, 1758

Rare. Reported north to Moreton Bay by Paxton et al. (1989: 390). Extends to at least off Swain Reefs (22°02'S, QM121563). Temperate east Atlantic and Indo-west Pacific.

TRACHIPTERIDAE

Trachipterus arawatae Clarke, 1881

Rare. Two specimens, QM13714 and QM110153 washed up on beach at Southport. The former is reported by Marshall (1964) as *T. jacksonensis* (Ramsay). A deepwater pelagic species. Temperate southwest Pacific.

REGALECIDAE

Regalecus glesne Ascanius, 1772

Rare. Two specimens, QM19626 and QM19637 found on beach at Southport. A live, but incapacitated specimen was recorded (as *R. pacificus*, Haast) from Comboyuro, Moreton I. by Marshall (1964). Oceanic species occasionally found inshore. Northern record. Temperate circumglobal.

AULOSTOMIDAE

Aulostomus chinensis (Linnaeus, 1766)
Uncommon inside Moreton Bay. One specimen and a sight record from Comboyuro Pt. Tropical Indo-Pacific.

FISTULARIIDAE

Fistularia commersonii Rüppell, 1838
Common. Tropical Indo-Pacific.

Fistularia petimba Lacepède, 1803
Common. Tropical and temperate Atlantic and central to Indo-west Pacific.

CENTRISCIDAE

Centriscus scutatus Linnaeus, 1758
Common. *C. cristatus* De Vis, 1885 is a probable synonym as distinguishing characters appear to merge with growth (Paxton et al., 1989: 410). Southern limit. Tropical Indo-west Pacific.

SYNGNATHIDAE

Canpichthys tryoni (Ogilby, 1890)
Common. Subtropical to temperate southeastern Australia.

Choeroichthys brachysoma (Bleeker, 1855)
Rare. Reported south to Masthead I. by Paxton et al. (1989: 414). Southern record QMI19771 from Myora. Tropical central and Indo-west Pacific.

Choeroichthys snillus (Whitley, 1951)
Rare. Reported south to Bowen by Paxton et al. (1989: 414). Southern record QMI30285 from Dunwich. Tropical to subtropical Australia.

Cosmocampus howensis (Whitley, 1948)
Rare. In Australian waters, reported only from Jervis Bay and Lord Howe I. (Paxton et al., 1989: 416) and Middleton Reef (Gill & Reader, 1992). Northern record two specimens from Southport seaway, QMI31167 (Fig. 2C). Temperate to subtropical eastern Australia and southwest Pacific.

Filicampus tigris (Castelnau, 1879)
Common. Subtropical to temperate Australia.

Hippichthys cyanospilus (Bleeker, 1854)
Common. Southern record QMI13398 from Welsby (27°24'S). Tropical Indo-west Pacific.

Hippichthys penicillus (Cantor, 1849)
Common. Tropical Indo-west Pacific.

Hippocampus planifrons Peters, 1877
Common historically, but from anecdotal evidence and recent surveys, populations appear to have declined significantly since the 1960s. Paxton et al. (1989: 422) reported *H. zebra* Whitley, 1964 from Moreton Bay from a single paratype (AMIB2819). This paratype is the 'zebra' colour form of *H. planifrons* which is known from Moreton Bay. Southern record QMI26197 from Peel I. Tropical Australia.

Hippocampus whitei Bleeker, 1855
Common. Temperate to subtropical Australia.

Microphis manadensis (Bleeker, 1856)
Doubtful record. The holotype of *Doryichthys stictorhynchus* Ogilby, 1912 (QMI1552) is the only known specimen from Moreton Bay and Australia. Elsewhere distributed from Solomon Islands, northern Papua New Guinea, Indonesia to Taiwan (Dawson, 1985). Collection data possibly confused by Ogilby. Tropical west Pacific.

Solegnathus dunckeri Whitley, 1927
Uncommon inside Moreton Bay. Regularly washed up on nearby ocean beaches. Central eastern Australia.

Stigmatopora uigra Kaup, 1856
Common. Tangalooma Pt reported as northern limit by Paxton et al. (1989: 430). Extends to Mooloolaba (26°40'S, QMI7751). Southwest Pacific and southern Australia.

Syngnathoides biaculeatus (Bloch, 1785)
Common. Tropical central and Indo-west Pacific.

Urocampus carinirostris Castelnau, 1872
Abundant, in seagrass beds. Subtropical to temperate Australia.

Vanacampus margaritifer (Peters, 1869)
Rare. Reported north to Southport (Dawson, 1985). Northern record QMI30885 from Dunwich. Temperate eastern and western Australia.

PEGASIDAE

Pegasus volitans Linnaeus, 1758

Common. *Parapegagus natans* (Linnaeus, 1766) is a junior synonym. Tropical Indo-west Pacific.

SCORPAENIDAE

Apistops caloundra (De Vis, 1886)

Uncommon. Reported south to Caloundra by Paxton et al. (1989: 439). Southern record QMI10825 from Southport. Tropical Australia.

Centropogon australis (White, 1790)

Abundant. Subtropical to temperate eastern and western Australia.

Centropogon tuurmoratus Günther, 1862

Abundant. Contrary to Paxton et al. (1989: 439), considered distinct from *C. australis* due to differences in squamation, colour and dorsal fin height. Subtropical to temperate eastern Australia.

Cottapistus praepositus (Ogilby, 1903)

Common. Southern record QMI29765 from Amity Pt. Tropical east Indo-west Pacific.

Dendrochirus zebra (Cuvier, 1829)

Common. Tropical Indo-west Pacific.

Erosu erosa (Langsdorf, 1829)

Rare inside Moreton Bay. Reported south to Moreton Bay by Paxton et al. (1989: 441). Southern limit off Coff's Harbour, NSW (30°18'S, K. Graham pers. comm., 1996). Tropical east Indo-west Pacific.

Hypodytes carinatus (Bloch & Schneider, 1801)

Uncommon. Reported south to off Clarence R. (29°26'S) and Newcastle (33°00'S), NSW by Graham & Wood (1997). Tropical east Indo-west Pacific.

Inimicus caledonicus (Sauvage, 1878)

Locally common along the south-western banks of Moreton I. Reported south to Capricorn Group (Paxton et al., 1989: 442). Southern limit Brunswick Heads, NSW (28°32'S, K. Graham pers. comm., 1996). Tropical east Indo-west Pacific.

Minous versicolor Ogilby, 1910

Common, in trawls. Reported south to Albatross Bay by Paxton et al. (1989: 444). Southern limit

extended south to off Clarence R., NSW (29°26'S) by Graham & Wood (1997). Tropical Australia.

Notesthes robusta (Günther, 1860)

Common. Usually found in estuaries or freshwater. Tropical to temperate eastern Australia.

Parascorpaena pictu Kuhl & van Hasselt, 1829

Rare. *Sebastapistes bynoensis* (Richardson, 1845) is a junior synonym (Paxton et al., 1989: 449). Reported south to Bargara by Paxton et al. (1989: 449). Southern record QMI29254 from Tangalooma Wrecks. Tropical Indo-west Pacific.

Pterois volitans (Linnaeus, 1758)

Common. Tropical central and Indo-west Pacific.

Scorpaena cardinalis Richardson, 1842

Common. Reported north to Moreton Bay by Paxton et al. (1989: 447). Occurs north to at least Fraser I. (25°13'S, personal observations, 1995). Southwest Pacific.

Scorpaenodes guamensis Quoy & Gaimard, 1824

Common. Reported south to Capricorn Group (23°30'S) by Paxton et al. (1989: 449). Southern record QMI31144 from Southport seaway, excluding Middleton Reef (Gill & Reader, 1992) and Norfolk I. (Francis, 1993). Tropical central and Indo-west Pacific.

Scorpaenodes scuber (Ramsay & Ogilby, 1886)

Common. Reported north to Woody Head, NSW (29°22'S) by Paxton et al. (1989: 450). Recorded north to Flinders Reef (26°58'S), QMI25731. Temperate to subtropical eastern Australia.

Scorpaenopsis gibbosa (Bloch & Schneider, 1801)

Rare. Two specimen lots in QM (Fig. 2D). Reported south to Capricorn Group by Paxton et al. (1989: 451). Report from Middleton Reef (29°26'S) by Gill & Reader (1992: 200) is based on a misidentification of QMI22976, *S. diabolus* Cuvier. Southern record QMI31136 from Southport seaway. Tropical Indo-west Pacific.

Scorpaenopsis macrochir Ogilby, 1910

Uncommon. Southern record QMI30376 from Myora. Tropical eastern Australia.

Scorpaenopsis venosa (Cuvier, 1829)

Uncommon. *S. palmeri* Ogilby, 1910 is a junior synonym (Eschmeyer & Rama Rao, in litt.,

1983). Southern record QMI7945 from Amity Pt. Tropical east Indo-west Pacific.

Synanceia horrida (Linnaeus, 1766)

Common. Reported south to Bargara by Paxton et al. (1989: 452). Reports extend to Tweed River, NSW (28°11'S). Tropical east Indo-west Pacific.

Taenianotus triacanthus Lacepède, 1802

Uncommon. Juveniles reported south to Sydney by Kuitert (1993). Tropical central and Indo-west Pacific.

TRIGLIDAE

Chelidonichthys kumu (Lesson, 1826)

Uncommon inside Moreton Bay. Reported north to Brisbane by Paxton et al. (1989: 454). Extends north to off Bunker Group (23°59'S). QMI19293. Temperate to subtropical Indo-west Pacific.

Lepidotrigla argus Ogilby, 1910

Common. Usually trawled along the east channel, inside Moreton Bay but abundant in deeper grounds off Cape Moreton. The records of *L. calodactyla* Ogilby, 1910 by Stephenson & Burgess (1980) and *Paratrigla* (= *Lepidotrigla*) *papilio* (Cuvier, 1829) by Weng (1988) are probably misidentifications of this species. Subtropical eastern to tropical western Australia.

APLOACTINIDAE

Adventor elongatus (Whitley, 1952)

Rare. Southern record QMI19066 from Brisbane R. mouth. Tropical Australia.

Bathyploactis curtisensis Whitley, 1933

Common. Reported south to Port Curtis by Paxton et al. (1989: 460). Some QM specimens from Moreton Bay were identified as *Karumba* (= *Bathyploactis*) *ornatissimus* (Whitley, 1933) by Poss in 1978. These specimens are indiscernible from *B. curtisensis* and are treated here as conspecific. Southern record QMI30913 from Coomera R. Tropical Australia.

Cocotropus sp.

Rare. Probably undescribed species, characterised by velvety skin covered in scales each bearing a spine; dorsal fin elements XII/8; anal fin elements II/6 and pectoral fin rays 11. Dorsal fin moderately elevated at front, middle and rear

but not separated or strongly notched and membrane not incised as in *Neoaploactis tridorsalis* Eschmeyer & Allen, 1978. One specimen, QMI31134, from Southport seaway (Fig. 2E). Also known from QMI22142 from Cook Is., NSW (28°12'S). Southeast Qld.

Paraploactis trachyderma Bleeker, 1865

Common. Southern limit Southport (Paxton et al., 1989: 461). Tropical to subtropical eastern Australia and central South Australia.

Peristrominons dolosus Whitley, 1952

Rare. Southern record QMI10720 from Brisbane R. Tropical Australia.

PATAECIDAE

Pataecus fronto Richardson, 1844

Uncommon. Occurs north to at least Alexandra Headland (26°40'S, QMI4519). Temperate to subtropical eastern and southwestern Australia.

PLATYCEPHALIDAE

Ambiserrula jugosus (McCulloch, 1914)

Common. Subtropical eastern Australia.

Cyubacephalus nematophthalmus (Günther, 1860)

Common. Tropical east Indo-west Pacific.

Cyubacephalus staigeri (Castelnau, 1875)

Doubtful record. Reported south to Brisbane by Paxton et al. (1989: 471). Possibly a misidentification of *C. nematophthalmus*. QM records reach south only to Great Keppell I. (23°10'S). Tropical Australia and New Guinea.

Inegocia harrisii (McCulloch, 1914)

Doubtful record. Reports by Stephenson & Burgess (1980), Stephenson et al. (1982a) and others are almost certainly misidentifications of *I. japonica* (Tilesius). *Inegocia harrisii* was described by McCulloch from two syntypes, AMSE2844 from near Pine Peak, Qld and AMSI12765 from Moreton Bay, however the latter is a specimen of *I. japonica* (Johnson, 1999). Distribution as recognised by Paxton et al. (1989: 466), Pine Peak, Qld (21°31'S) north to Napier Broome Bay, WA (126°36'E). Tropical Australia.

Iuegocia japonica (Tilesius, 1812)

Common, in trawls. Often misidentified as *I. harrisii* (see note above). Southern limit. Tropical east Indo-west Pacific.

Levanaora bosschei (Bleeker, 1860)

Rare. Reported south to One Tree I. by Paxton et al. (1989: 471). Southern record QMI11525. Tropical Indo-west Pacific.

Platycephalus areuarius Ramsay & Ogilby, 1886
Abundant. Tropical Indo-Australian Archipelago.

Platycephalus caeruleopunctatus McCulloch, 1922

Uncommon inside Moreton Bay. Commonly taken off Southport. Temperate eastern Australia.

Platycephalus eudrachtensis Quoy & Gaimard, 1824

Common. Often confused with *P. indicus*. Tropical Australia and New Guinea.

Platycephalus fuscus Cuvier, 1829

Abundant. Temperate to tropical eastern Australia.

Platycephalus indicus (Linnaeus, 1758)

Common. Tropical Indo-west Pacific.

Platycephalus longispinis Macleay, 1884

Common. Temperate to subtropical eastern and southwestern Australia.

Sorsogoua tuberculata (Cuvier, 1829)

Rare. Two specimens, QMI30684 from near Shark Spit, Moreton I. Reported south to Platypus Bay (24°56'S) by Paxton et al. (1989: 470). Southern record. Tropical Indo-west Pacific.

Thysanophrys celebicus (Bleeker, 1854)

Rare. Recorded in Australia only from Decapolis Reef (14°52'S) by Paxton et al. (1989: 472). Southern record QMI29809 from Curtin Artificial Reef. Tropical Indo-west Pacific.

Thysanophrys cirrouasus (Richardson, 1848)

Rare. Sight records from Amity Pt and Southport seaway only. Several closely related species are difficult to distinguish underwater and a specimen is required for confirmation. Reported

north to Caloundra (Paxton et al., 1989: 472). Temperate eastern and southwestern Australia.

DACTYLOPTERIDAE

Dactyloptena orientalis (Cuvier, 1829)

Common. Tropical central and Indo-west Pacific.

Dactyloptena papilio Ogilby, 1910

Common. Reported south to Moreton Bay by Paxton et al. (1989: 481). Extends south to off Port Stephens (32°12'S), AMSI24767-001 and Newcastle (33°00'S, Graham & Wood, 1997). Tropical Australia.

CENTROPOMIDAE

Psammoperca waigiensis (Cuvier, 1828)

Rare. Recorded south to Townsville by Paxton et al. (1989: 483). Common to Hervey Bay (25°17'S). Southern record QMI2611. Tropical east Indo-west Pacific.

AMBASSIDAE

Aubassis jacksouieusis Macleay, 1881

Common. Reported north to Moreton Bay by Allen and Burgess (1990). QM records extend to Burnett River (24°46'S, QMI23860). Temperate to subtropical eastern Australia.

Aubassis mariauus Günther, 1880

Abundant. Temperate to subtropical eastern Australia.

SERRANIDAE

Acauthistiis ocellatus (Günther, 1859)

Rare. Voucher QMI3839. Northern limit. Temperate eastern Australia.

Centrogeuys vaigiensis (Quoy & Gaimard, 1824)

Common. Southern record QMI29867 from Myora. Tropical Indo-west Pacific.

Cephalopholis boeuck (Bloch, 1790)

Rare. Reported south to One Tree I. by Paxton et al. (1989: 491). Southern record QMI12193 from Myora. Tropical Indo-west Pacific.

Cephalopholis niniatus (Forsskål, 1775)

Rare. Sight record from Southport seaway only. Reported south to One Tree I. (23°30'S) by Paxton et al., 1989: 491. Southern record. Tropical central and Indo-west Pacific.

Cromileptes altivelis (Valenciennes, 1828)

Rare. Small juveniles reported south to Sydney by Kuitert (1993) but adults uncommon south of Bunker Group (24°00'S). Tropical Indo-west Pacific.

Epinephelus coioides (Hamilton, 1822)

Abundant. The name *E. tauvina* (Forsskål, 1775) has often been incorrectly applied to this species, as well as to *E. malabaricus* (Paxton et al., 1989: 498). *E. tauvina* is known from Flinders Reef (26°58'S), QMI17426 and Point Lookout (27°26'S), QMI31308. However it is comparatively rare in the region and due to the absence of voucher specimens, all records of *E. tauvina* from Moreton Bay are treated as misidentifications of either *E. coioides* or *E. malabaricus*. Tropical Indo-west Pacific.

Epinephelus cyanopodus (Richardson, 1846)

Uncommon inside Moreton Bay. Tropical east Indo-west Pacific.

Epinephelus fasciatus (Forsskål, 1775)

Common. Tropical central and Indo-west Pacific.

Epinephelus daemeli (Günther, 1876)

Rare inside Moreton Bay. Reported north to southern Qld (Paxton et al., 1989: 494; Heemstra & Randall, 1993) and to Townsville (19°16'S) by Hutchins & Swainston (1986: 52). Northernmost QM record confirmed from photographs of a large specimen taken off Breaksea Spit, Fraser I. (24°15'S) by A. Munn (Qld Boating & Fisheries Patrol) in 1998. Warm temperate to subtropical southwest Pacific.

Epinephelus lanceolatus (Bloch, 1790)

Common. Tropical Indo-west Pacific.

Epinephelus maculatus (Bloch, 1790)

Uncommon. Sight records of juveniles from Comboyuro Pt and Southport seaway only. Tropical central to west Pacific.

Epinephelus malabaricus (Bloch & Schneider, 1801)

Common. Often confused with *E. coioides*. Tropical Indo-west Pacific.

Epinephelus quoyanus (Valenciennes, 1830)

Uncommon inside Moreton Bay. Frequently confused with *E. merra* Bloch, 1793. The record of *E. merra* by McCulloch & Whitley (1925) can

not be verified and is treated as a misidentification. Tropical Indo-west Pacific.

Epinephelus rivulatus (Valenciennes, 1830)

Rare inside Moreton Bay. Only record is from holotype of *E. viridipinnis* De Vis, 1884. Occurs north to Flinders Reef (26°58'S), QMI19184. Subtropical eastern and Western Australia, tropical central and Indo-west Pacific.

Epinephelus sexfasciatus (Kuhl & van Hasselt, 1828)

Rare. Southern record QMI15129, from Deception Bay. Tropical east Indo-west Pacific.

Epinephelus undulostriatus (Peters, 1867)

Common. Subtropical eastern Australia.

Hypoplectrodes annulatus (Günther, 1859)

Doubtful record. Reported by Paxton et al. (1989: 504) north to Moreton Bay. Occasionally taken in deeper water (50-100m) north to Barwon Banks (26°40'S, QMI17873) but no records from inside Moreton Bay. Temperate eastern Australia.

Hypoplectrodes jamiesoni Ogilby, 1908

Common. Temperate to subtropical eastern Australia.

Hypoplectrodes maccullochi (Whitley, 1929)

Rare. Common off Southport and Cook Is. (28°12'S) but only one specimen from Moreton Bay. Northern record QMI31331 from Amity Pt. Temperate eastern Australia.

Plectropomus leopardus (Lacepède, 1802)

Uncommon. Reported south to Lamont Reef by Paxton et al. (1989: 500). Several sightings at Curtin Artificial Reef and Tangalooma Wrecks only. Southern limit. Tropical Indo-west Pacific.

Rainfordia opercularis McCulloch, 1923

Rare. Reported south to One Tree I. by Paxton et al. (1989: 500). Southern record QMI29166 from Tangalooma Wrecks, excluding Lord Howe I. (Francis, 1993). Tropical eastern and western Australia.

PERCICHTHYIDAE

Macquaria novemaculeata (Steindachner, 1866)

Common. Occasionally netted near mouths of Pine and Caboolture Rivers but more frequently reported from upper reaches, in or near freshwater. Temperate eastern Australia.

GRAMMISTIDAE

Diploprion bifasciatum Kuhl & van Hasselt, 1828
Common. Tropical east Indo-west Pacific.

Grammistes sexlineatus (Thunberg, 1792)
Rare. Reported south to Lizard I. (14°40'S) by Paxton et al. (1989: 517). Specimen from Comboyuro Pt, QMI30821 and a sight record from Myora. Recorded south to Palm Beach Reef (28°07'S), QMI19744 and Lord Howe I. (Francis, 1993). Tropical Indo-west Pacific.

PSEUDOCHROMIDAE

Ogilbyina novaehollandiae (Steindachner, 1880)
Uncommon inside Moreton Bay. Reported south to Capricorn Group by Paxton et al. (1989: 519). Southern record QMI29158 from Tangalooma Wrecks. Subtropical to tropical eastern Australia.

Pseudochromis cyanotaenia Bleeker, 1857
Rare. Only records QMI29863 and QMI30388 from Myora. Occurs south to Cook Is., NSW (28°12'S, QMI21711). Tropical east Indo-west Pacific.

Pseudochromis fuscus Müller & Troschel, 1849
Rare. Only record QMI784, holotype of *P. wildii* Ogilby, 1908. Southern limit. Tropical east Indo-west Pacific.

PLESIOPIDAE

Paraplesiops poweri Ogilby, 1908
Common. Subtropical eastern Australia.

Plesiops corallicola Bleeker, 1853
Doubtful record. Known from Cocos-Keeling Is., northeastern Papua New Guinea and the Solomon Islands but not recorded from Australian coastal waters (Mooi, 1995). One specimen, QMI581 registered by Ogilby in 1912. Collection data possibly erroneous. Tropical central and east Indo-west Pacific.

Plesiops genaricus Mooi & Randall, 1991
Rare. Reported south to Capricorn Group (Mooi, 1995). Southern record QMI31165 from Southport seaway. Tropical eastern Australia.

Trachinops taeniatus Günther, 1861
Locally common at Curtin Artificial Reef, based on sightings only. Reported north to North

Solitary Is., NSW by Paxton et al. (1989: 527). Extends to at least Mudjimba I. (26°37'S, QMI29094). Temperate eastern Australia.

ACANTHOCLINIDAE

Belonepterygian fasciatum (Ogilby, 1889)
Rare. Southern record QMI11241 from Myora, excluding Lord Howe I. (Francis, 1993). Tropical east Indo-west Pacific.

GLAUCOSOMATIDAE

Glaucosoma scapulare Ramsay, 1881
Rare inside Moreton Bay. Commonly taken in depths of 40-150m outside Moreton Bay. Subtropical eastern Australia.

TERAPONTIDAE

Anniataba camlavittata (Richardson, 1845)
Doubtful record. Reported south to Moreton Bay by Ogilby & McCulloch (1916) on the basis of an uncatalogued QM specimen which is no longer extant. QM records extend south to Sabina Pt (22°24'S, QMI28350). Tropical Australia and New Guinea.

Helotes sexlineatus (Quoy & Gaimard, 1824)
Rare. Southern record QMI30884 from Manly (Fig. 2F). Tropical Australia.

Pelates sexlineatus (Quoy & Gaimard, 1824)
Common near seagrass beds. References to *P. quadrilineatus* (Bloch, 1790) south of Hervey Bay may be misidentifications of this species. *Helotes sexlineatus* is similar in colour, but is more elongate and has tricuspid teeth. Temperate to subtropical eastern Australia.

Terapon jnrhua (Forsskål, 1775)
Common. Tropical Indo-west Pacific.

Terapon theraps (Cuvier, 1829)
Rare. Reported by Hyland (1988) from Brisbane R and J. Robins (unpubl. data) from Deception Bay. No specimens in QM. Reported south to Clarence R, NSW (29°26'S) (Graham & Wood, 1997). Tropical Indo-west Pacific.

KUHLIIDAE

Kuhlia mugil (Forster, 1801)
Rare inside Moreton Bay. Sight record from Bulwer only. Tropical Indo-Pacific.

PRIACANTHIDAE

Priacanthus hamrur (Forsskål, 1775)

Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Priacanthus macracanthus Cuvier, 1829

Common. Tropical to temperate east Indo-west Pacific.

APOGONIDAE

Apogon capricornis Allen & Randall, 1993

Uncommon. Tropical to subtropical eastern Australia.

Apogon cavitiensis (Jordan & Seale, 1907)

Common. *Apogon virgulatus*, Allen & Randall, 1993 is a junior synonym (Allen & Randall, 1995). Previously misidentified as *A. hartzfeldii* Bleeker, 1852, a similar species also known from eastern Australia. Tropical Indo-Australian Archipelago.

Apogon cookii Macleay, 1881

Uncommon. Most reports from southern Qld are probably attributable to *A. limenus* Randall & Hoese. Tropical Indo-west Pacific.

Apogon crassiceps Garman, 1903

Uncommon inside Moreton Bay. Characterised by elongate caudal peduncle with a vague dark midlateral longitudinal streak. Three cryptic species of red semitransparent *Apogon* have been collected in Moreton Bay. They are provisionally identified as *A. crassiceps*, *A. erythrinus* and *A. fuscus*; however these species and *A. coccineus* Rüppell, 1838 have been confused in the literature and require revision. Another similar species, *A. doryssa* (Jordan & Seale), recognised by elongate second dorsal spine, is recorded from nearby Flinders Reef (26°59'S, QM131177). Reported south to Pixie Reef (20°28'S) by Paxton et al. (1989: 546) and Lord Howe and Norfolk I. (Francis, 1993; Francis & Randall, 1993), however these may not be conspecific records. Most Australian records of *A. coccineus* probably refer to this species. Tropical central and east Indo-west Pacific.

Apogon doederleini Jordan & Snyder, 1901

Uncommon. Tropical Indo-west Pacific.

Apogon cf. *erythrinus* Snyder, 1904

Rare. Characterised by rounded head and snout, deep body and stout caudal peduncle. One lot, QMI29156 from Tangalooma Wrecks. Southern record. Tropical Indo-west Pacific?

Apogon fasciatus (White, 1790)

Abundant. Ranked second in abundance of trawled fishes from Moreton Bay by Stephenson & Burgess (1980). Tropical Indo-west Pacific.

Apogon fraenatus Valenciennes, 1832

Rare. Sight record from Amity Pt only. Tropical central and Indo-west Pacific.

Apogon fuscus Quoy & Gaimard, 1824

Rare. Similar to *A. crassiceps* but has caudal peduncle and lower half of caudal fin dusky. Three lots, QMI29745, QMI30419 and QMI-31334 from Amity Pt. Southern record. Tropical Indo-west Pacific.

Apogon limenus Randall & Hoese, 1988

Abundant. Subtropical eastern Australia.

Apogon nigripinnis Cuvier, 1828

Common. Kuitert (1993) treated the eastern Australian form of this species as *A. atripes* (Ogilby, 1916). Tropical Indo-west Pacific.

Apogon pallidofasciatus Allen, 1987

Uncommon. Reported from North West Cape to Broome, WA by Paxton et al. (1989: 550). Southern record QMI29873 from Myora. Tropical Australia.

Apogon poecilopterus Cuvier, 1828

Common, in trawls. Reports of *A. ellioti* Day, 1875 by Stephenson & Burgess (1980) may be misidentifications of this species (*A. poecilopterus* was not recorded in their surveys). *Apogon ellioti* is only known south to off Cliff Pt. (22°38'S, AMSI34360-001). Southern record QMI26163 from off Russell I. Tropical east Indo-west Pacific.

Apogon seuiornatus Peters, 1876

Uncommon inside Moreton Bay. Voucher QMI31153. Tropical Indo-west Pacific.

Apogonichthys ocellatus Weber, 1913

Rare. Reported south to Capricorn Group (Paxton et al., 1989: 551). Southern record QMI31143 from Southport seaway. Tropical Indo-west Pacific.

Foa brachygramma Jenkins, 1903

Uncommon. Record of *F. fo* Jordan & Seale, 1906 from Moreton Bay by Paxton et al. (1989: 554) is probably referable to this species. Allen (pers. comm., 1996) advised that most if not all Australian specimens of *Foa* are *F. brachygramma*. Southern record QMI30995 from Southport broadwater. Tropical central to east Indo-west Pacific.

Fowleria variegata (Valenciennes, 1832)

Locally common at Amity Pt and Myora. Reported south to Capricorn Group by Paxton et al. (1989: 554) and Sydney Harbour by Kuitert (1993). Tropical Indo-west Pacific.

Siphamia cuuiceps Whitley, 1941

Uncommon. Temperate to subtropical eastern and western Australia.

Siphamia rosiegaster (Ogilby, 1886)

Abundant. Temperate to subtropical eastern Australia.

SILLAGINIDAE

Sillago analis Whitley, 1943

Common. Southern record QMI30977 from Brisbane R. Tropical Australia and southern New Guinea.

Sillago ciliata Cuvier, 1829

Abundant. New Caledonia and eastern Australia.

Sillago iugenuua McKay, 1985

Rare. Reported south to Adolphus Passage (10°38'S) by McKay (1992). Southern record QMI29546 (Fig. 2G) from Pearl Channel (27°06'S). Tropical east Indo-west Pacific.

Sillago maculata Quoy & Gaimard, 1824

Abundant. Eastern Australia.

Sillago robusta Stead, 1908

Common. Temperate to subtropical eastern and western Australia.

MALACANTHIDAE

Malacanthus brevisrostris Guichenot, 1848

Uncommon inside Moreton Bay. Sight records from Curtin Artificial Reef only. Tropical Indo-Pacific.

POMATOMIDAE

Pomatomus saltatrix (Linnaeus, 1766)

Abundant. Temperate Atlantic and Indo-west Pacific.

ECHENEIDIDAE

Echeneis naucrates Linnaeus, 1758

Common. Circumtropical.

Remora remora Linnaeus, 1758

Uncommon inside Moreton Bay. Circumglobal.

CARANGIDAE

Alectis ciliaris (Bloch, 1787)

Common. Circumtropical.

Alectis indicus (Rüppell, 1830)

Common. Tropical Indo-west Pacific.

Alepes sp.

Abundant. An undescribed species often confused with *A. djedaba* (Forsskål, 1775). Gunn (1990) considered '*A. apercna*' to be a probable nomen nudum inadvertently used by Grant (1987). Tropical Australia.

Atule mate (Cuvier, 1833)

Uncommon. Voucher QMI26876. Reported south to Townsville by Paxton et al. (1989: 574) and Gunn (1990). Graham & Wood (1997) extended southern limit to Clarence River, NSW (29°26'S). Tropical central and Indo-west Pacific.

Carangoides caeruleopinnatus (Rüppell, 1830)

Uncommon. Voucher QMI23423. Gunn (1990) recorded *C. diversa* (Whitley, 1940) and *C. uii* Wakiya, 1924 as junior synonyms and reported distribution as south to Townsville. Graham & Wood (1997) extended southern limit to Clarence River (29°26'S) and Newcastle (33°00'S), NSW. Tropical Indo-west Pacific.

Carangoides chrysophrys (Cuvier, 1833)

Common. Tropical Indo-west Pacific.

Carangoides dinema Bleeker, 1851

Rare. Widespread throughout the Indo-Pacific but reported to be absent from Australian waters by Gunn (1990). Closely related to *C. humerosus*, from which it differs in having a slightly lower soft dorsal ray count and a pale vs dusky spinous

dorsal fin. New record for Australia based on QM122345, from Southport Broadwater. Tropical Indo-west Pacific.

Carangoides ferdau (Forsskål, 1775)
Uncommon. Tropical central and Indo-west Pacific.

Carangoides fulvoguttatus (Forsskål, 1775)
Locally common at Curtin Artificial Reef, from sight records of schools of large adults. Unconfirmed reports (Gunn, 1990) extended south to Solitary Islands, NSW (30°11'S). Tropical Indo-west Pacific.

Carangoides humerosus (McCulloch, 1915)
Rare. Reported south to Bustard Head (24°08'S) by Gunn (1990). Southern record QM130242 from off Shorncliffe (27°21'S). Tropical Australia and New Guinea.

Carangoides malabaricus (Bloch & Schneider, 1831)
Common. in trawls. Southern limit extended from Moreton Bay to Clarence R. (29°26'S) and Newcastle (33°00'S), NSW by Graham & Wood (1997). Tropical Indo-west Pacific.

Caranx ignobilis (Forsskål, 1775)
Common. Tropical central and Indo-west Pacific.

Caranx melampygus Cuvier, 1833
Common. Tropical Indo-Pacific.

Caranx pppuensis Alleyne & Macleay, 1877
Rare. Reported south to Brisbane by Paxton et al. (1989: 578). No QM records from inside Moreton Bay, but one specimen, QM131176 from Flat Rock (27°23'S). Southern record. Tropical central and Indo-west Pacific

Caranx sexfasciatus Quoy & Gaimard, 1825
Common. Tropical Indo-Pacific.

Decapterus russelli (Rüppell, 1830)
Common. Reported south to Deception Bay (27°10'S) by Paxton et al. (1989: 580). Extends to Clarence River, NSW (29°23'S, AMSI-34108-001). Tropical Indo-west Pacific.

Gnathanodon speciosus (Forsskål, 1775)
Common. Adults uncommon beyond Southport, juveniles occur south to Sydney (Kuiter, 1993). Tropical Indo-Pacific.

Megalaspis cordyla (Linnaeus, 1758)
Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Naucrates ductor (Linnaeus, 1758)
Uncommon inside Moreton Bay. Circumglobal.

Paruromuteus niger (Bloch, 1795)
Rare. Reported by Ogilby (1918b) from Coomera River. Paxton et al. (1989: 581) gave Townsville as southern limit. Southern record QM13118. Tropical Indo-west Pacific.

Pseudocaranx dentex (Bloch & Schneider, 1801)
Common. Temperate to subtropical Atlantic and central to Indo-west Pacific.

Scomberoides commersonianus Lacepède, 1801
Rare. One specimen, QM129835 from Toorbul and a sight record from Southport. Reported from Tingalpa Ck mouth (Morton, 1990). Southern record. Tropical Indo-west Pacific.

Scomberoides lysan (Forsskål, 1775)
Common. Tropical central and Indo-west Pacific.

Scomberoides tol (Cuvier, 1832)
Uncommon. Reported south to Brisbane (Paxton et al. 1989: 583). Extends to Coolangatta (28°10'S, QM15241). Tropical Indo-west Pacific.

Selaroides leptolepis (Kuhl & van Hasselt, 1833)
Common. Southern limit extended from Moreton Bay to Clarence R. (29°26'S) by Graham & Wood (1997). Tropical Indo-west Pacific.

Seriola dumerili (Risso, 1810)
Common. Temperate Atlantic and central to Indo-west Pacific.

Seriola hippos Günther, 1876
Uncommon inside Moreton Bay. Temperate southwest Pacific and southwestern Australia.

Seriola lalandi Valenciennes, 1833
Common. Temperate to subtropical circum-global.

Seriola rivoliana Valenciennes, 1833
Uncommon inside Moreton Bay. Sight records from Curtin Artificial Reef and Tangalooma Wrecks only. Regularly taken by anglers off Flinders Reef (26°58'S). Circumtropical.

Serioliua nigrofasciata (Rüppell, 1829)
Uncommon. Reported south to Clarence R., NSW (29°26'S) by Graham & Wood (1997). Tropical Indo-west Pacific.

Trachinotus anak Ogilby, 1909
Uncommon inside Moreton Bay. Tropical Australia and west Pacific.

Trachinotus blochii (Lacepède, 1801)
Uncommon inside Moreton Bay. Tropical central and Indo-west Pacific.

Trachinotus coppingeri (Günther, 1884)
Abundant. Subtropical eastern Australia.

Trachurus declivis Jenyns, 1841
Common. Temperate to subtropical Australia and Southwest Pacific.

Trachurus novaehollandiae Richardson, 1843
Common. Temperate to subtropical Australia and southwest Pacific.

Ulua mentalis (Cuvier, 1833)
Rare. Reported south to Townsville (Paxton et al., 1989: 587). Southern record based on a sighting of a large specimen from Southport seaway. Tropical Indo-west Pacific.

Uraspis uraspis (Günther, 1860)
Rare. Southern record QMI10609. Tropical Indo-west Pacific.

CORYPHAENIDAE

Coryphaena hippurus Linnaeus, 1758
Uncommon inside Moreton Bay. Circum-tropical.

RACHYCENTRIDAE

Rachycentron canadus (Linnaeus, 1766)
Common. Tropical Atlantic and central to Indo-west Pacific.

LEIOGNATHIDAE

Leiognathus decornis (De Vis, 1884)
Common. Usually found in muddy upper reaches of mangrove creeks and estuaries. Reported south to Maryborough (25°32'S) by Jones (1985). Southern record QMI25332 from Pt Talburpin (27°39'S). Tropical Australia.

Leiognathus moretoniensis (Ogilby, 1912)
Abundant. Ranked third in abundance of trawled fishes from Moreton Bay by Stephenson & Burgess (1980). Tropical to subtropical Australia.

LUTJANIDAE

Lutjanus adetii (Castelnaud, 1873)
Uncommon inside Moreton Bay. Tropical to subtropical eastern Australia to New Caledonia.

Lutjanus argentimaculatus (Forsskål, 1775)
Common. Tropical Indo-west Pacific.

Lutjanus carponotatus (Richardson, 1842)
Uncommon. Records from Tangalooma Wrecks, Curtin Artificial Reef and Comboyuro Pt. Tropical east Indo-west Pacific.

Lutjanus fulviflamma (Forsskål, 1775)
Uncommon inside Moreton Bay. Sight records from Curtin Artificial Reef and Southport seaway only. Tropical Indo-west Pacific.

Lutjanus gibbus (Forsskål, 1775)
Uncommon. Tropical Indo-west Pacific.

Lutjanus kasmira (Forsskål, 1775)
Uncommon inside Moreton Bay. Tropical central and Indo-west Pacific.

Lutjanus malabaricus Schneider, 1801
Uncommon. Tropical West Pacific to northern Indian Ocean.

Lutjanus quinquelineatus (Bloch, 1790)
Uncommon. Tropical west Pacific to northern Indian Ocean.

Lutjanus russelli (Bleeker, 1849)
Abundant. Tropical Indo-west Pacific.

Lutjanus sebae (Cuvier, 1828)
Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Lutjanus vitta (Quoy & Gaimard, 1824)
Uncommon. Southern record QMI17819 from Tangalooma Wrecks. Tropical Indo-west Pacific.

Paracaesio xanthurus (Bleeker, 1869)
Uncommon inside Moreton Bay. Subtropical to warm temperate eastern Australia and Indo-west Pacific.

Pristipomoides filamentosus (Valenciennes, 1830)
Rare inside Moreton Bay. Common in deeper water outside the bay. Tropical central and Indo-west Pacific.

Symphorus nematophorus (Bleeker, 1860)
Common. Usually found in this area as juveniles or subadults. Tropical western Pacific and Indo-Australian Archipelago.

CAESIONIDAE

Caesio caerulea Lacepède, 1801
Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Pterocaesio chrysozona (Cuvier, 1830)
Rare. A single specimen reported by Ogilby (1916b). No specimens in QM. Tropical Indo-west Pacific.

Pterocaesio digramma (Bleeker, 1865)
Locally common at Tangalooma Wrecks, Curtin Artificial Reef and Comboyuro Pt. West Pacific and Indo-Australian Archipelago.

NEMIPTERIDAE

Nemipterus hexodon (Quoy & Gaimard, 1824)
Uncommon. Southern limit QM114777 from off Shorncliffe (27°20'S). Although not yet recorded, *N. theodorei* Ogilby, 1916 is commonly trawled to the east of Moreton Bay and is likely to occur in deeper areas near the East Channel. Tropical west Pacific and Indo-Australian Archipelago.

Pentapodus paradiseus (Günther, 1859)
Abundant. Northeastern Australia and southern New Guinea to Solomon Is.

Scolopsis bilineatus (Bloch, 1793)
Locally common at Comboyuro Pt, Amity Pt and Myora. Tropical east Indo-west Pacific.

Scolopsis monogramma (Kuhl & Van Hasselt, 1830)
Common. Indo-Australian Archipelago and northwestern Pacific.

LOBOTIDAE

Lobotes surinamensis (Bloch, 1790)
Uncommon. Circumtropical.

GERREIDAE

Gerres filamentosus Cuvier, 1829
Rare. Southern record QM13071. Tropical Indo-west Pacific.

Gerres oyena (Forsskål, 1775)
Common. Southern record QM130321 from Dunwich. Tropical Indo-west Pacific.

Gerres subfasciatus (Cuvier, 1830)
Abundant. Commonly used synonym *G. ovatus* Günther, 1859. Frequently confused with *G. oyena*. Warm temperate to tropical Australia.

HAEMULIDAE

Diagramma pictum labiosum Macleay, 1883
Common. Tropical to subtropical Australia and New Guinea.

Plectorhinchus flavomucronatus (Ehrenberg, 1830)
Abundant. Tropical Indo-west Pacific.

Plectorhinchus gibbosus (Lacepède, 1802)
Common. Tropical Indo-west Pacific.

Plectorhinchus lessoni (Cuvier, 1830)
Rare inside Moreton Bay. Frequently misidentified as *P. diagramma* (Linnaeus, 1758) and *P. lineatus* (non Linnaeus, 1758). Sight record of juvenile from Myora only. Tropical Indo-west Pacific.

Plectorhinchus picus (Cuvier, 1830)
Rare inside Moreton Bay. Sight record of juvenile at Myora only. Tropical Indo-west Pacific.

Plectorhinchus unicolor (Macleay, 1883)
Uncommon inside Moreton Bay. Previously misidentified as *P. schotaf* (Forsskål, 1775), a closely related species from the Indian Ocean and northwest Pacific. Tropical Australia and southern New Guinea.

Pomadasys argenteus (Forsskål, 1775)
Uncommon. Tropical Indo-west Pacific.

Pomadasys kaakan (Cuvier, 1830)
Uncommon. Anecdotal evidence suggests specimens to about 3 kg were commonly taken in Moreton Bay up to the 1960s. Southern record QM119780 from Logan River. Tropical Indo-west Pacific.

Pomadasys maculatum (Bloch, 1797)
Uncommon. Southern record QMI19779 from Logan River. Tropical Indo-west Pacific.

LETHRINIDAE

Gymnocranius audleyi Ogilby, 1916
Uncommon inside Moreton Bay. Subtropical eastern Australia.

Lethrinus genivittatus Valenciennes, 1830
Common. Frequently used synonym *L. nematacanthus* Bleeker, 1854. Western Pacific and Indo-Australian Archipelago.

Lethrinus laticaudis Alleyne & Macleay, 1877
Common. Frequently used synonym *L. fletus* Whitley, 1943. Tropical Australia to southern Indonesia, Solomon Is. and New Caledonia.

Lethrinus miniatus (Schneider, 1801)
Rare inside Moreton Bay. *Lethrinus chryso-stomus* Richardson, 1848 is a junior synonym. *Lethrinus miniatus* had been previously misapplied to *L. olivaceus* Valenciennes, 1830 (Carpenter & Allen, 1989). Tropical Australia and New Caledonia.

Lethrinus nebulosus (Forsskål, 1775)
Common. Tropical Indo-west Pacific.

SPARIDAE

Acanthopagrus australis (Owen, 1853)
Abundant. Eastern Australia.

Argyrops spinifer (Forsskål, 1775)
Uncommon. Tropical Indo-west Pacific.

Pagrus auratus Schneider, 1801
Abundant. Temperate to subtropical Australia, southwest and northwest Pacific.

Rhabdosargus sarba (Forsskål, 1775)
Common. Warm temperate and subtropical Indo-west Pacific.

SCIAENIDAE

Argyrosomus japonicus (Temminck & Schlegel, 1843)
Common. Previously misidentified as *A. hololepidotus* (Lacepède, 1802), a species found by Griffiths & Heemstra (1995) to be endemic to

Madagascar. Temperate to subtropical Indo-west Pacific.

Johnius novaehollandiae (Steindachner, 1866)
Rare. Known from six specimens collected in the Logan and Brisbane Rivers. Trewavas (1977) implied that this species and *J. weberi* Hardenberg, 1936 may be synonymous and placed *Pseudomycterus maccullochi* Ogilby, 1908 (QMI1535 from Logan R.) in the synonymy of *J. belangerii* (Cuvier, 1830). She failed to examine the types of either *J. novaehollandiae* or *P. maccullochi*. Despite the availability of numerous specimens of this complex from Queensland waters, none are identifiable as *J. belangerii* using characters employed by Trewavas. Determinations of QM specimens made subsequently by K. Sasaki (pers. comm., 1993) are followed and both *P. maccullochi* and *J. weberi* are considered to be synonyms of *J. novaehollandiae*. Southern record (type locality of Port Jackson highly doubtful; type was despatched to Naturhistorisches Museum in Vienna from Sydney but was probably collected in Qld). Northeast Australia and Indo-Malay Archipelago?

Johnius vogleri (Bleeker, 1853)
Abundant. Tropical east Indian Ocean and Indo-Australian Archipelago.

Nibea soldado (Lacepède, 1802)
Rare. Reported by Ogilby (1918a). Southern record QMI3173. Tropical east Indian Ocean and Indo-Australian Archipelago.

MULLIDAE

Mulloidichthys flavolineatus (Lacepède, 1801)
Common. Tropical central and Indo-west Pacific.

Parupeneus ciliatus (Lacepède, 1801)
Locally common at Southport seaway and Amity Pt. Frequently confused with *P. spilurus*. Tropical central and Indo-west Pacific.

Parupeneus heptacanthus (Lacepède, 1801)
Rare. One specimen, QMI31001 from Curtin Artificial Reef. Southern record, excluding Lord Howe I. (Francis, 1993). Tropical Indo-west Pacific.

Parupeneus indicus (Shaw, 1803)

Rare. Sight records from Comboyuro Pt and Southport seaway only. Southern record. Tropical Indo-west Pacific.

Parupeneus multifasciatus

(Quoy & Gaimard, 1825)

Locally common at Comboyuro Pt and Curtin Artificial Reef. Voucher QMI29796. Tropical central and east Indo-west Pacific.

Parupeneus spilurus (Bleeker, 1854)

Common. *Parupeneus signatus* (Günther, 1867) is generally considered synonymous (Randall et al., 1990). Kuitert (1993) treats *P. spilurus* as a species from Chinese and Japanese seas and *P. signatus* as a distinct Australian species. Sub-tropical eastern and western Australia and southwest Pacific.

Upeneus tragula Richardson, 1846

Abundant. Tropical Indo-west Pacific.

MONODACTYLIDAE

Monodactylus argenteus (Linnaeus, 1758)

Abundant. Tropical Indo-west Pacific.

Schuetta scalaripinnis Steindachner, 1866

Locally common at Tangalooma Wrecks, Curtin Artificial Reef and Southport seaway. Temperate to subtropical eastern Australia.

PEMPHERIDAE

Parapriacanthus ransonneti Steindachner, 1870

Rare. Sight record from Amity Pt only. Tropical Indo-west Pacific.

Pempheris affinis McCulloch, 1911

Locally common at Curtin Artificial Reef. Sight records only. Temperate to subtropical eastern Australia.

Pempheris schwenkii Bleeker, 1855

Common. Southern record QMI31164 from Southport seaway. Tropical Indo-west Pacific.

Pempheris ypsilychnus Mooi & Jubb, 1996

Common. Southern record QMI30438 from Amity Pt. Tropical Australia.

LEPTOBRAMIDAE

Leptobrama muelleri Steindachner, 1879

Rare. Two specimens, QM11015 and AMS112810 only. Ogilby (1913) recorded three females, 206 to 266mm, from Moreton Bay. Common north from Mary R. (25°30'S) Southern record. Tropical Australia and New Guinea.

KYPHOSIDAE

Kyphosus bigibbus (Lacepède, 1803)

Common. Tropical to temperate central to Indo-west Pacific.

Kyphosus cinerascens (Forsskal, 1775)

Common. Tropical Indo-west Pacific.

Kyphosus sydneyanus (Günther, 1866)

Common. Temperate to subtropical Australia and southwest Pacific.

Kyphosus vaigiensis (Quoy & Gaimard, 1825)

Common. Sasaki and Nakabo (1995) recognise *K. gibsoni* Ogilby, 1912 as a junior synonym. Tropical central to Indo-west Pacific.

GIRELLIDAE

Girella elevata Macleay, 1881

Rare inside Moreton Bay. Only record QMI19589. Occasional reports from Pt Lookout and Cape Moreton. Recorded north to Caloundra (26°48'S, QMI12070). Temperate eastern Australia.

Girella tricuspidata (Quoy & Gaimard, 1824)

Abundant. Temperate southeastern Australia and southwest Pacific.

SCORPIDIDAE

Atypichthys strigatus (Günther, 1860)

Common. Occurs north to at least Fraser I. (25°13'S, personal observations, 1995). Temperate eastern Australia.

Microcanthms strigatus (Langsdorff, 1831)

Abundant. Temperate to subtropical eastern and western Australia, central and west Pacific.

Scorpius lineolatus Kner, 1865

Common. Occurs north to at least Fraser I. (25°13'S, personal observations, 1995).

Temperate eastern Australia and southwest Pacific.

EPHIPPIDIDAE

Drepane punctata (Linnaeus, 1758)
Rare. Southern record QMI2614. Tropical Indo-west Pacific.

Platax orbicularis (Forsskål, 1775)
Rare. Only record QMI11610. Tropical central and Indo-west Pacific.

Platax teira (Forsskål, 1775)
Common. Tropical to warm temperate Indo-west Pacific.

SCATOPHAGIDAE

Scatophagus argus (Linnaeus, 1766)
Common. Tropical Indo-west Pacific.

Selenotoca multifasciata (Richardson, 1846)
Abundant. Tropical to subtropical Indo-Australian Archipelago.

CHAETODONTIDAE

Chaetodon aureofasciatus Macleay, 1878
Uncommon. Tropical Australia and New Guinea.

Chaetodon auriga Forsskål, 1775
Common. Tropical to warm temperate Indo-west Pacific.

Chaetodon beuueti Cuvier, 1831
Rare. One specimen, QMI10529 and several sight records from the Myora area. Southern record, excluding Lord Howe I. (Francis, 1993). Tropical Indo-west Pacific.

Chaetodon citrinellus Cuvier, 1831
Common. Tropical central and Indo-west Pacific.

Chaetodon ephippium Cuvier, 1831
Common. Tropical central to east Indo-west Pacific.

Chaetodon flavirostris Günther, 1873
Abundant. Tropical south Pacific.

Chaetodon guentheri Ahl, 1913
Uncommon. Subtropical to temperate western Pacific.

Chaetodon kleinii Bloch, 1790
Common. Tropical central and Indo-west Pacific.

Chaetodon liueolatus Cuvier, 1831
Uncommon. Sight records from Myora and Southport seaway only. Tropical Indo-west Pacific.

Chaetodon luuula (Lacepède, 1803)
Common. Tropical Indo-west Pacific.

Chaetodon melannotus Bloch & Schneider, 1801
Uncommon. Tropical Indo-west Pacific.

Chaetodon mertensii Cuvier, 1831
Uncommon. Tropical west Pacific.

Chaetodon peleweensis Kner, 1868
Rare. Sight records from Myora only. Tropical south Pacific.

Chaetodon plebeius Cuvier, 1831
Locally common at Myora. Tropical east Indo-west Pacific.

Chaetodon rafflesi Bennett, 1830
Rare. Sight records from Myora only. Tropical east Indo-west Pacific.

Chaetodon raiufordi McCulloch, 1923
Locally common at Myora. Tropical eastern Australia.

Chaetodon speculum Cuvier, 1831
Juveniles locally common at Myora. Tropical east Indo-west Pacific.

Chaetodon trifasciatus Park, 1797
Locally common at Myora. Tropical central and Indo-west Pacific.

Chaetodon ulietensis Cuvier, 1831
Uncommon. Tropical east Indo-west Pacific.

Chaetodon uniuaculatus Bloch, 1787
Uncommon. Sight records from Myora only. Tropical Indo-west Pacific.

Chaetodon vagabuudus Linnaeus, 1758
Common. Tropical Indo-west Pacific.

Chelouon rostratus (Linnaeus, 1758)
Common. Tropical east Indo-west Pacific.

Chelmonops truncatus (Kner, 1859)
Common. Temperate to subtropical eastern Australia.

Corulion ulivellis McCulloch, 1916
Common. Tropical west Pacific.

Forcipiger flavissimus Jordan & McGregor, 1898
Rare. Two specimens from Myora, QM11774 and QM130380. Tropical Indo-Pacific.

Heniochus ucuuinatus (Linnaeus, 1758)
Common. Tropical Indo-west Pacific.

Heniochus monoceros Cuvier, 1831
Uncommon. Two specimens (AM117270-001, QM130425) and several sight records, all from Amity Pt. Tropical Indo-west Pacific.

Paruchaetodon acellatus (Cuvier, 1831)
Common. Tropical east Indo-west Pacific.

POMACANTHIDAE

Centropyge bicolor (Bloch, 1787)
Rare inside Moreton Bay. Only records QM1-1840-1 and several sight records from Myora area. Tropical east Indo-west Pacific.

Centropyge bispinosus (Günther, 1860)
Rare inside Moreton Bay. Sight records from Myora and Amity Pt only. Tropical Indo-west Pacific.

Centropyge tibicen (Cuvier, 1831)
Common. Records from Amity Pt, Myora and Southport seaway. Tropical east Indo-west Pacific.

Centropyge vroliki (Bleeker, 1853)
Uncommon. Sight records from Amity Pt, Myora and Southport seaway. Tropical east Indo-west Pacific.

Chaetodontoplus conspicillatus (Waite, 1900)
Rare. Sight record from Amity Pt only. Subtropical to tropical southwest Pacific.

Chaetodontoplus duboulayi (Günther, 1867)
Rare. Reported by Ogilby (1915) and Marshall (1964). A recent sight record from Myora.

Southern limit. Tropical Australia and New Guinea.

Chaetodontoplus meredithi Kuitert, 1990
Uncommon. Tropical eastern Australia.

Pomacanthus inperator (Bloch, 1787)
Rare inside Moreton Bay. One specimen, QM130824 from Comboyuro Pt. Tropical Indo-west Pacific.

Pomacanthus semicirculatus (Cuvier, 1831)
Common. Sight records from Tangalooma Wrecks, Amity Pt, Myora and Southport seaway. Tropical Indo-west Pacific.

Pygoplites diacanthus (Boddaert, 1772)
Rare. Sight records from Amity Pt and Myora only. Tropical Indo-west Pacific.

ENOPLOSIDAE

Enoplosus aruatus (White, 1790)
Uncommon. Occurs north to Wide Bay (Gomon et al., 1994: 628). Southern Australia.

PENTACEROTIDAE

Paristiopterus labiosus (Günther, 1871)
Rare. Recorded from off Manly, QM120959 and Dunwich, QM130883. Occurs north to Mooloolaba (26°40'S), QM121274. Temperate southwest Pacific.

POMACENTRIDAE

Abudefduf beugaleusis (Bloch, 1787)
Abundant. Tropical east Indo-west Pacific.

Abudefduf sexfasciatus (Lacepède, 1801)
Common. Tropical Indo-west Pacific.

Abudefduf sordidus (Forsskal, 1775)
Uncommon inside Moreton Bay. Sight records from Bulwer only. Tropical Indo-west Pacific.

Abudefduf vaigiensis (Quoy & Gaimard, 1825)
Common. Tropical Indo-west Pacific.

Abudefduf whitleyi Allen & Robertson, 1974
Common. Tropical southwest Pacific.

Auiphiopriou akindyuos Allen, 1972
Common. Tropical southwest Pacific.

Auphiprion latezonatus Waite, 1900

Rare inside Moreton Bay. Only record AMSI-17327-001. Northern limit. Northern NSW and southern Qld to Norfolk I.

Chromis hypsilepis (Günther, 1876)

Uncommon. Reported north to Solitary Is., NSW by Gomon et al. (1994: 669). Sight records from Amity Pt and Southport seaway. Northern record. Temperate to subtropical southwest Pacific.

Chromis margaritifer Fowler, 1946

Rare inside Moreton Bay. Only record QM1-31147 from Southport seaway. Tropical east Indo-west Pacific.

Chromis nitida (Whitley, 1928)

Uncommon inside Moreton Bay. Sight records from Amity Pt and Southport seaway. Warm temperate to tropical southwest Pacific.

Chromis viridis (Cuvier, 1830)

Rare. Only record QM14490. Southern limit. Tropical Indo-west Pacific.

Chrysiptera cyanea (Quoy & Gaimard, 1824)

Rare inside Moreton Bay. Several specimens, QM110509, QM130395 and AMSI21710-001. Southern limit. Tropical western Pacific to Indonesia.

Chrysiptera cf. flavipinnis (Allen & Robertson, 1974)

Uncommon. Two specimens from Myora, QM129890, were tentatively identified by G.R. Allen. They lack the typical yellow colouration on the upper back and dorsal fin. Tropical southwest Pacific.

Chrysiptera taupou (Jordan & Seale, 1906)

Rare inside Moreton Bay. Sight record from Amity Pt only. Southern record. Tropical southwest Pacific.

Dascyllus aruanus (Linnaeus, 1758)

Rare inside Moreton Bay. Sight records from Myora only. Tropical Indo-west Pacific.

Dascyllus melanurus Bleeker, 1854

Rare. Specimen from Peel I., QM18993 and a sight record from Myora. Southern record. Tropical eastern Australia, Coral Sea and Indo-Malay Archipelago.

Dascyllus triuacnatus (Rüppell, 1828)

Locally common at Curtin Artificial Reef and Myora. Voucher QM129864. Tropical Indo-west Pacific.

Dischistodus fasciatus (Cuvier, 1830)

Rare. Only record QM12189, collected in 1914 and originally identified by G.P. Whitley. Southern limit. Tropical western Australia to Philippines.

Mecaenichthys inuacnatus (Ogilby, 1885)

Rare. Sight record from Amity Pt only. Occurs north to off Mooloolaba (26°40'S, QM131320). Temperate to subtropical eastern Australia.

Neopomacentrus bankieri (Richardson, 1845)

Abundant. Tropical eastern Australia and Indo-Malay Archipelago.

Neopomacentrus cyanomos (Bleeker, 1856)

Uncommon. Tropical Indo-west Pacific.

Parua oligolepis Whitley, 1929

Abundant. Warm temperate to tropical eastern Australia.

Parua polylepis Günther, 1862

Rare. Sight record from Amity Pt only. Subtropical southwest Pacific.

Parua unifasciata (Steindachner, 1867)

Common. Sight records from Comboyuro Pt, Bulwer, Amity Pt and Southport seaway. Temperate to subtropical eastern Australia.

Plectroglyphidodon leucozonus (Bleeker, 1859)

Locally common at Southport seaway. Tropical Indo-west Pacific.

Pomacentrus amboiuensis Bleeker, 1868

Common. Tropical east Indo-west Pacific.

Pomacentrus anstralis Allen & Robertson, 1973

Abundant. Subtropical eastern Australia.

Pomacentrus brachialis Cuvier, 1830

Uncommon. Two specimens from Amity Pt, QM129754 and QM130446. Southern record. Tropical southwest Pacific and Indo-Australian Archipelago.

Pomacentrus coelestis Jordan & Starks, 1901

Common. Tropical east Indo-west Pacific.

Pomacentrus moluccensis Bleeker, 1853
Locally common at Amity Pt and Myora.
Tropical east Indo-west Pacific.

Pomacentrus nagasakiensis Tanaka, 1909
Locally common at Amity Pt, Myora and
Southport seaway. Tropical east Indo-west
Pacific.

Pomacentrus wardi Whitley, 1927
Common. Tropical to subtropical eastern Aust-
ralia.

Stegastes apicalis (De Vis, 1885)
Common. Tropical eastern Australia.

Stegastes gascoynei (Whitley, 1964)
Locally common at Amity Pt and Southport
seaway. Tropical to warm temperate eastern
Australia and southwest Pacific.

CIRRHITIDAE

Cirrhitichthys aprinus (Cuvier, 1829)
Uncommon inside Moreton Bay. Specimen,
QMI30261 and sight records from Amity Pt and
sight records from Southport seaway. Tropical to
subtropical Indo-Australian Archipelago.

Cirrhitichthys falco Randall, 1963
Uncommon inside Moreton Bay. Specimen,
QMI30349 from Myora and sight records from
Amity Pt. Tropical eastern Australia and east
Indo-west Pacific.

CHIRONEMIDAE

Chironemus marmoratus Günther, 1860
Uncommon inside Moreton Bay. Sight records
from Southport seaway only. Temperate south-
west Pacific.

APLODACTYLIDAE

Criuodus lophodon Günther, 1859
Locally common at Southport seaway but rare
elsewhere in Moreton Bay. Northern record
QMI12097 from off Bribie I. Temperate eastern
Australia.

CHEILODACTYLIDAE

Cheilodactylus fuscus Castelnau, 1879
Common. Reported by Ogilby (1908a). Sight
records from Tangalooma Wrecks, Curtin

Artificial Reef and Southport seaway. Temperate
to subtropical eastern Australia to New Zealand.

Cheilodactylus vestitus (Castelnau, 1878)
Abundant. Warm temperate to subtropical
eastern Australia and southwest Pacific.

CEPOLIDAE

Acanthocepola krusensternii Schlegel, 1850
Common. Erroneously recorded by Marshall
(1925;1964) as *Cepola australis* Ogilby, 1899, a
southern species that apparently does not reach
this area. Fifteen specimens in QM, most taken
by trawl. Occurs south to at least off Currumbin
(28°08'S, QMI21722). Tropical east Indo-west
Pacific.

MUGILIDAE

Crenimugil crenilabis (Forsskål, 1775)
Rare. Only record that of *Mugil papillosa*
Macleay, 1883 (Tosh, 1903; McCulloch &
Whitley, 1925) which is almost certainly
referable to this species. Known from nearby
Flinders Reef (26°58'S), QMI28331. Tropical
Indo-west Pacific.

Liza argentea (Quoy & Gaimard, 1825)
Common. Temperate to subtropical Australia.

Liza subviridis (Valenciennes, 1836)
Abundant. Tropical Indo-west Pacific.

Mugil cephalus Linnaeus, 1758
Abundant. Temperate to tropical circumglobal.

Myxus elongatus Günther, 1861
Common. Temperate to subtropical Australia
and southwest Pacific.

Valamugil georgii (Ogilby, 1897)
Abundant. Subtropical to tropical northeastern
Australia.

Valamugil seheli (Forsskål, 1775)
Rare. Reported south to Brisbane by Marshall
(1951) but only to Bundaberg (24°45'S) by Grant
(1987). One specimen in QM. Southern record
QMI30250, excluding Norfolk I. (Francis, 1993).
Tropical Indo-west Pacific.

SPHYRAENIDAE

Sphyraena acutipinnis Day, 1876
Uncommon inside Moreton Bay. Tropical central and Indo-west Pacific.

Sphyraena barracuda Walbaum, 1792
Common. Tropical central and Indo-west Pacific.

Sphyraena flavicincta Ruppell, 1838
Common. Tropical central and Indo-west Pacific.

Sphyraena jello Cuvier, 1829
Common. Tropical Indo-west Pacific.

Sphyraena obtusata Cuvier, 1829
Abundant. Tropical central and Indo-west Pacific.

Sphyraena putnamiae Jordan & Seale, 1905
Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

POLYNEMIDAE

Polydactylus multiradiatus (Günther, 1860)
Abundant. Tropical Indo-Australian Archipelago.

Polydactylus sheridani (Macleay, 1884)
Uncommon. Occasionally taken by beam trawlers near Pine and Caboolture R. mouths, reportedly when banana prawns, *Peneus merguensis* are schooled. Photograph sighted of a large specimen taken by S. Goleby from Brisbane R. in 1997. Only specimen QM18042 from Toorbul (27°04'S). Southern record. Tropical northeastern Australia and southern New Guinea.

LABRIDAE

Achoerodus viridis (Steindachner, 1866)
Uncommon inside Moreton Bay. Reported by McCulloch & Whitley (1926). Sight records from Amity Pt and Southport seaway. South-eastern Australia.

Anampses caeruleopunctatus Rüppell, 1829
Uncommon. Sight records from Amity Pt and Southport seaway only. Tropical Indo-west Pacific.

Anampses geographicus Valenciennes, 1840
Locally common at the Southport seaway. Tropical Australia and west Pacific.

Bodianus perditio (Quoy & Gaimard, 1835)
Uncommon inside Moreton Bay. Subtropical southern Indian Ocean, southwest and northwest Pacific.

Bodianus unimaculatus (Günther, 1862)
Rare inside Moreton Bay. Temperate to subtropical eastern Australia and southwest Pacific.

Cheilinus chlorurus (Bloch, 1791)
Rare. One lot from Amity Pt, QM130430. Southern record. Tropical central and Indo-west Pacific.

Cheilinus trilobatus Lacepède, 1801
Uncommon. Sight records from Amity Pt and Southport seaway only. Southern record. Tropical central and Indo-west Pacific.

Cheilio inermis (Forsskål, 1775)
Common. Tropical to subtropical central and Indo-west Pacific.

Choerodon cephalotes (Castelnau, 1875)
Common. Tropical Indo-Australian Archipelago.

Choerodon fasciatus (Günther, 1867)
Uncommon inside Moreton Bay. Subtropical to tropical eastern Australia, New Caledonia and northwest Pacific.

Choerodon graphicus (De Vis, 1885)
Uncommon. Tropical eastern Australia and New Caledonia.

Choerodon schoentleinii (Valenciennes, 1839)
Common. Tropical Australia and western Pacific.

Choerodon venustus (De Vis, 1884)
Uncommon inside Moreton Bay. Subtropical to tropical eastern Australia.

Cirrhilabrus punctatus Randall & Kuiter, 1989
Locally common at Amity Pt and Myora. Tropical to subtropical eastern Australia and southwest Pacific.

Coris aurilineata Randall & Kuiter, 1982

Locally common at Comboyuro Pt, Amity Pt and Myora. Subtropical eastern Australia.

Coris batuensis (Bleeker, 1856)

Locally common at Amity Pt and Myora. Tropical Indo-west Pacific.

Coris picta (Bloch & Schneider, 1801)

Common. Temperate to subtropical eastern Australia and southwest Pacific.

Hulichoeres hartfeldii (Bleeker, 1852)

Uncommon. Specimen, QM11591 and sight records from Myora and Amity Pt. Tropical Indo-west Pacific.

Hulichoeres margaritaceus (Valenciennes, 1839)

Locally common at Bulwer and Amity Pt. Sight records only. Tropical to subtropical east Indo-west Pacific.

Hulichoeres marginatus Rüppell, 1835

Locally common at Amity Pt and Southport seaway. Tropical central and Indo-west Pacific.

Hulichoeres melanurus (Bleeker, 1851)

Uncommon. Sight records from Amity Pt only. Tropical western Pacific.

Hulichoeres nebulosus (Valenciennes, 1839)

Uncommon inside Moreton Bay. Sight records from Bulwer and Amity Pt only. Tropical to warm temperate Indo-west Pacific.

Hulichoeres trimaculatus (Quoy & Gaimard, 1834)

Common. Sight records from Myora and Amity Pt only. Tropical east Indo-west Pacific.

Hemigymnus fasciatus (Bloch, 1792)

Uncommon. Specimen, AMS117118-001 from Amity Pt. Juveniles sighted at Amity Pt and Myora. Tropical central and Indo-west Pacific.

Hemigymnus melapterus (Bloch, 1791)

Adults uncommon inside Moreton Bay. Juveniles often sighted at Amity Pt. Voucher QM129481 from Tangalooma Wrecks. Tropical Indo-west Pacific.

Labroides dimidiatus (Valenciennes, 1839)

Common. Tropical to warm temperate central and Indo-west Pacific.

Lubropsis xanthonota Randall, 1981

Rare. Sight record from Myora only. Tropical eastern Australia and Indo-west Pacific.

Notolabrus gymnoogenis (Günther, 1862)

Locally common at Southport seaway. Rare elsewhere in Moreton Bay. Recorded north to Mooloolaba (Ogilby, 1908) and off Point Cartwright (personal observations, 1995). Temperate to subtropical eastern Australia.

Ophthalmolepis lineolatus (Valenciennes, 1839)

Uncommon. Sight records from Amity Pt and Southport seaway only. Reported north to Byron Bay, NSW by Hutchins & Swainston (1986). Occurs north to at least Caloundra (26°48'S, QM14376). Temperate to subtropical Australia.

Oxycheilinus bimaculatus (Valenciennes, 1840)

Common. Tropical central and Indo-west Pacific.

Pseudolabrus guentheri Bleeker, 1862

Abundant. Subtropical eastern Australia.

Pterogogus enneacanthus (Bleeker, 1852)

Uncommon. One specimen, QM131137 and several sight records from Southport seaway. Tropical west Pacific and Indo-Australian Archipelago.

Pterogogus flagellifera (Cuvier & Valenciennes, 1839)

Common. Tropical Indo-west Pacific.

Stethojulis bandauensis (Bleeker, 1851)

Uncommon. Sight records from Amity Pt and Southport seaway only. Tropical Pacific.

Stethojulis interrupta (Bleeker, 1851)

Common. Specimen from Myora, QM130391 and sight records from Amity Pt and Southport seaway. Tropical Indo-west Pacific.

Stethojulis strigiventer (Bennett, 1832)

Locally common at Amity Pt and Myora. Voucher QM130390. Tropical Indo-west Pacific.

Suezichtllys gracilis (Steindachner & Döderlein, 1887)

Uncommon. Kuiter (1993) regards the Australian form of this species as *S. devisi* (Whitley, 1941). Sight records from Myora only. Subtropical northwest and southwest Pacific.

Thalassoma amblycephalum (Bleeker, 1856)
Uncommon inside Moreton Bay. Sight records from Amity Pt and Southport seaway only. Tropical central and Indo-west Pacific.

Thalassoma hardwicke (Bennett, 1828)
Locally common at Amity Pt. Tropical central and Indo-west Pacific.

Thalassoma janseni (Bleeker, 1856)
Common. Tropical east Indo-west Pacific.

Thalassoma lunare (Linnaeus, 1758)
Abundant. Tropical central and Indo-west Pacific.

Thalassoma lutescens (Lay & Bennett, 1839)
Common. Tropical Indo-Pacific.

Thalassoma trilobatum (Lacepède, 1801)
Uncommon inside Moreton Bay. Sight records from Southport seaway and Bulwer only. Tropical central and Indo-west Pacific.

Xyrichtys jacksoniensis (Ramsay, 1881)
Locally common off the north-western beaches of Moreton I., along sandy dropoffs. Subtropical eastern Australia.

ODACIDAE

Odax cyanomelas (Richardson, 1850)
Rare. Usually found along rocky shores in surf zones. Reported by Ogilby (1908a) and Marshall (1964) as northern limit. Specimens confirmed north to Angourie Pt, NSW only (Gomon & Paxton, 1985). Temperate Australia.

SCARIDAE

Calotomus carolinus (Valenciennes, 1840)
Rare. Reported from Moreton Bay by Marshall (1964: 320) as *Cryptotomus* (= *Calotomus*) *spinidens* (non Quoy & Gaimard, 1824). Bruce & Randall (1985) regard most prior references to *C. spinidens* as in error and applicable to *C. carolinus*. Unconfirmed sight record from Southport seaway. Tropical Indo-Pacific.

Leptoscarus vaigiensis (Quoy & Gaimard, 1824)
Common. Tropical central and Indo-west Pacific.

Scarus ghobban Forsskål, 1775
Abundant. Tropical Indo-Pacific.

Scarus microrhinos Rüppell, 1828
Rare inside Moreton Bay. Sight record from Curtin Artificial Reef only. Tropical Australia, central and west Pacific.

OPISTOGNATHIDAE

Opistognathus eximius (Ogilby, 1908)
Uncommon. Tropical to subtropical eastern Australia.

Opistognathus jacksoniensis (Macleay, 1881)
Uncommon. Subtropical eastern Australia.

PINGUIPEDIDAE

Parapercis cylindrica (Bloch, 1797)
Locally common at Amity Pt, Myora and Southport seaway. Tropical west Pacific.

Parapercis diplospilus Gomon, 1981
Common. Tropical Indo-Australian Archipelago.

Parapercis nebulosus (Quoy & Gaimard, 1825)
Abundant. Tropical Australia.

Parapercis stricticeps (De Vis, 1884)
Common. Subtropical to tropical eastern Australia.

PERCOPHIDAE

Matsubaraea fusiforme (Fowler, 1943)
Uncommon. Known from 12 specimens taken by small-meshed sled and dredge on the Western Banks, Moreton Bay (Fig. 2H). Found in 3 to 5m depth on subtidal sandbanks subject to wave break at low tide. Observations in captivity suggest this species is capable of rapidly burying in loose sandy substrate. Noichi et al. (1991) give a description of the depth distribution of *M. fusiforme* off a beach in Japan. Differs from closely related *Enignapercis* Whitley by the presence of inward projecting cirri on the edge of the anterior nasal openings. Previously known from Japan, Philippines and the Gulf of Thailand (Matsuura, 1991). In Australia, specimens from Port Curtis, 23°55'S (AMIA4191) and Moreton Bay (QMI30689, QMI30692 and QMI30696). New record for Australia. Subtropical eastern Australia and northwest Pacific.

CREEDIIDAE

Schizocliturus insolens Waite, 1904

Rare. Records from Cowan Cowan, QMI4347 and Western Banks, QMI30698. Known only from a few specimens taken between Island Head (22°19'S, AMSI34384-010) and Maroubra Bay, NSW (Nelson, 1978). Subtropical eastern Australia.

LEPTOSCOPIDAE

Lesueurina platycephala Fowler, 1907

Uncommon inside Moreton Bay. Reported (as *Leptoscopus macropygus* Richardson) north to Cape Moreton (27°02'S) by Ogilby (1912: 57). QM records extend north to Fraser I. (25°31'S, QMI31365). Temperate to subtropical Australia.

URANOSCOPIDAE

Icluthyscopus sannio Whitley, 1936

Common. Subtropical eastern Australia.

Icluthyscopus nigripinnis (Gomon & Johnson, 1999)

Uncommon. Voucher QMI30217. Subtropical eastern Australia to southern New Guinea.

BLENNIDAE

Istiblennius edentulus (Schneider, 1801)

Rare inside Moreton Bay. Only record QMI29672 from Woody Pt (27°16'S). Tropical central and Indo-west Pacific.

Istiblennius meleagris (Valenciennes, 1836)

Abundant. Subtropical to tropical Australia.

Laiphognathus cf. *multimaculatus* Smith, 1955

Common. Springer (1972;1981) reported *L. multimaculatus* from East Africa to the Solomon Islands, with Australian records limited to Kendrew I., WA. Specimens examined from eastern Australia, especially those from central Qld to northern NSW (Fig. 21), differ from *L. multimaculatus* (Smith 1959, pl. 17, fig. 2) in colour and are considerably more elongate. Known from False Orford Ness, Cape York (11°23'S, AMSI20776-046), south to Cook Is., NSW (28°12'S, QMI22147). Tropical eastern Australia?

Meiacanthus lineatus (De Vis, 1884)

Locally common at Amity Pt and Myora. Tropical eastern Australia.

Omobranchus anolius (Valenciennes, 1836)

Common. Central South Australia and eastern Australia.

Omobranchus punctatus (Valenciennes, 1836)

Abundant. Tropical Indo-west Pacific.

Omobranchus rotundiceps rotundiceps (Macleay, 1881)

Common. Subtropical to tropical Australia.

Omobranchus verticalis Springer & Gomon, 1975

Rare. All Qld records between Moreton Bay and Cleveland Bay (19°18'S). Numerous disjunct records from Northern Territory, between western Gulf of Carpentaria and Darwin in the NTM. Usually found inside damp mangrove logs in the supralittoral zone. Southern record QMI25243 from Brisbane R. Northeastern Australia.

Parablennius tasmanianus intermedius (Ogilby, 1915)

Abundant. Eastern Australia.

Petroscirtes fallax Smith-Vaniz, 1976

Locally common at Amity Pt. Subtropical to tropical eastern Australia.

Petroscirtes lupus (De Vis, 1886)

Abundant. Subtropical eastern Australia and southwest Pacific.

Petroscirtes variabilis Cantor, 1850

Common. Tropical eastern Australia and Indo-Malay Archipelago.

Plagiotremus tapeinosoma (Bleeker, 1857)

Common. Tropical central and Indo-west Pacific.

Plagiotremus rhiuorhynchus (Bleeker, 1852)

Uncommon. Specimens QMI30436 and QMI31149 from Amity Pt, and sight records from Southport seaway. Tropical central and Indo-west Pacific.

Xiphusia setifer Swainson, 1839

Common. Tropical Indo-west Pacific.

TRIPTERYGIIDAE

Enneapterygius atrogulare (Günther, 1873)
Common. Frequently used synonym *E. annulatus* (Ramsay & Ogilby, 1887). Eastern Australia.

Enneapterygius leuinielae (Kner & Steindachner, 1866)

Rare inside Moreton Bay. Only record QM1-31166 from Southport seaway. Tropical Australia, Indonesia and western Pacific.

Enneapterygius intuilae Jordan & Seale, 1906
Uncommon. Reported south to Fairfax Reef (23°51'S) by Fricke (1994). Southern record QM129245 from Tangalooma Wrecks. Tropical central and Indo-west Pacific.

Lepidoblemnus laptodactylus Steindachner, 1867
Rare or now absent. Only record QM129671 from Redcliffe, collected in early 1900's. Type locality of Rockhampton represents only record north of Moreton Bay. Recent efforts unsuccessful in locating this species north of Fingal Head, NSW (28°12'S), QM121550. Temperate eastern Australia.

Norfolkia thomasi Whitley, 1964
Common. Reported south to Capricorn Group by Fricke (1994: 477). QM records extend to Byron Bay, NSW (28°38'S), QM128161. Tropical Australia and west Pacific.

Ucla xenogrammus Holleman, 1993
Rare. Reported south to Lady Musgrave I. (23°54'S) by Fricke (1994: 559). Southern record QM129753 from Amity Pt. Tropical east Indo-west Pacific.

CLINIDAE

Cristiceps aurantiacus Castelnau, 1879
Uncommon. Two specimens from Southport in QM. Recent reports from the Southport seaway by aquarium fish collectors. Northern record QM17514. Warm temperate eastern Australia and southwest Pacific.

Heteroclinus sp.
Rare. One specimen, QM110731. Undescribed species recognised by D. Hoese (pers. comm., 1996). Warm temperate eastern Australia.

Peronedys anguillarix Steindachner, 1884
Doubtful record based on holotype of the synonymous *Scleropteryx devisi* (Ogilby, 1894) and followed by Marshall (1964). The type reported to be in QM (QM1362) according to McCulloch (1929-30), but two syntypes (AM1362) are in AMS. George & Springer (1980) report that the locality of capture is much further north than any other ophiclinid and may be erroneous. Eastern South Australia.

AMMODYTIDAE

Ammodytoides vaga (McCulloch & Waite, 1916)
Uncommon. Subtropical eastern Australia.

CALLIONYMIDAE

Callionymus belcheri Richardson, 1844
Common. Southern record QM111049, from off Tangalooma. Northeastern Australia and southern New Guinea.

Callionymus calcaratus Macleay, 1881
Common. Temperate to subtropical eastern and southwestern Australia and southwest Pacific.

Callionymus grossi Ogilby, 1910
Common. Southern limit. Tropical Australia.

Callionymus liniceps Ogilby, 1908
Abundant. Subtropical eastern Australia.

Callionymus macdonaldi Ogilby, 1911
Abundant. Subtropical eastern Australia.

Callionymus russelli Johnson, 1976
Common. Tropical eastern and northeastern Australia. Southern record CAS31863.

Callionymus sublaevis McCulloch, 1926
Common. Southern record QM110182 from off St Helena I. Tropical Australia.

Dactylopus dactylopus (Valenciennes, 1837)
Uncommon. Specimens in AMS south to Brunswick Heads (28°33'S), NSW (M. McGrouther pers. comm., 1997). Tropical east Indo-west Pacific.

Synchiropus ocellatus (Pallas, 1770)
Rare. Only record QM129782 from Amity Pt. Tropical west Pacific.

GOBIIDAE
GOBIINAE

Acentrogobius caninus (Cuvier & Valenciennes, 1837)

Common. Tropical Indo-west Pacific.

Afurcagobius tamarensis (Johnston, 1883)

Rare. No specimens in QM. Previously placed in the genus *Favonigobius*. Reported by Young & Wadley (1979). Northern limit (D. Hoese pers. comm., 1996). Temperate Australia.

Amblygobius phaluena (Valenciennes, 1837)

Common. Tropical to subtropical Indo-Pacific.

Auoya sp.

Common. Identified as *A. sp. 4* (Larson pers. comm., 1998). Five specimen lots in QM, QMI-13397, QMI30965, QMI31020, QMI31090 and QMI31178. Southern record from Nundah Ck. Subtropical eastern Australia.

Arenigobius frenatus (Günther, 1861)

Abundant. Temperate to subtropical eastern Australia.

Arenigobius leftwichi (Ogilby, 1910)

Uncommon. Voucher QMI13382. Tropical to subtropical eastern Australia.

Austrolethops wardi Whitley, 1935

Rare. Vouchers QMI7400 and QMI31189 (Fig. 2J). Tropical Indo-Australian Archipelago and Indian Ocean.

Batlygobius krefftii (Steindachner, 1866)

Abundant. Temperate to subtropical eastern Australia and South Australia.

Bathygobius luddi (Fowler, 1931)

Uncommon inside Moreton Bay. Vouchers QMI-29531, QMI30237, QMI31161 and QMI31162. Tropical Indo-west Pacific.

Calauiana sp.

Rare. Identified as *C. sp. 2* (H. Larson pers. comm., 1998). Usually found in supralittoral and saltmarsh areas. Southern record QMI31278 from Eden I. (27°45'S). Tropical Australia.

Callogobius depressus (Ramsay & Ogilby, 1886)

Rare. Voucher QMI29532. Temperate Australia.

Cullogobius sp.

Uncommon. An undescribed species referred to as *C. sp. 6* (D. Hoese pers. comm., 1996). Specimens from Amity Pt, QMI29751; Myora, QMI29891 and QMI30364; and Southport seaway, QMI31141. Tropical to subtropical west Pacific.

Coryphopterus neophytus (Günther, 1877)

Common. Previously placed in the genus *Fusigobius*. Specimens from Amity Pt, QMI29746, QMI30429 and QMI31345 and sight records from Southport seaway. Tropical central and Indo-west Pacific.

Cristatogobius gobioides (Ogilby, 1886)

Common. Subtropical eastern Australia.

Cryptocentrus sp.?

Common. May represent an undescribed genus and species (D. Hoese pers. comm., 1996). Recognised by vertical orange bars on head and 4 or 5 diffuse dusky blotches on sides. Observed at Myora occupying abandoned burrows of the mud lobster, *Neaxius glyptocercus* (von Martens). Voucher specimens, QMI17913, QMI29226 and QMI30961 (Fig. 2K). Subtropical eastern Australia.

Drombus cf. *triangularis* (Weber, 1911)

Common. Found in estuaries and littoral rocky reefs. Ten specimen lots in QM. Voucher QMI-27121. Tropical Indo-Australian Archipelago.

Eviota cf. *melasma* Lachner & Karnella, 1980

Rare. Only specimen QMI31132 from Southport seaway. Southern record. Tropical western Pacific.

Favonigobius exquisitus Whitley, 1950

Abundant. Subtropical eastern Australia.

Favonigobius lentiginosus (Richardson, 1844)

Abundant. Commonly referred to as *F. lateralis* Macleay, 1881, a species not occurring north of Victorian waters (D. Hoese pers. comm., 1996). Subtropical eastern Australia.

Glossogobius biocellatus (Valenciennes, 1837)

Uncommon. Found in estuaries. Southern record QMI31080 from Southport broadwater. Tropical Indo-west Pacific.

Gnatholepis sp.

Uncommon. Undescribed species currently under study by Randall and Greenfield. Usually found on rocky littoral reefs. Voucher QM120350. Subtropical eastern Australia.

Gobiolon quinquestrigatus (Valenciennes, 1837)

Rare. Only record QM110973 from Myora. Tropical east Indo-west Pacific.

Gobiopterus semivestita (Munro, 1949)

Abundant. South Australia to subtropical Qld.

Istigobius decaratus (Herre, 1927)

Locally common at Amity Pt. Tropical Indo-west Pacific.

Istigobius nigrocellatus (Günther, 1874)

Common. Tropical west Pacific and Indo-Australian Archipelago.

Mugilogobius platynotus (Günther, 1861)

Rare. Voucher QM131368. Northeastern Australia.

Mugilogobius stigmatiscus (De Vis, 1884)

Abundant. Northeastern Australia.

Pseudodakia lidwilli (McCulloch, 1917)

Uncommon. Usually found in estuaries. Voucher QM125244. Tropical west Pacific and Indo-Australian Archipelago.

Paraclaeturichthys polynemu (Bleeker, 1853)

Common. Tropical Indo-west Pacific.

Parkrueneria ornata Whitley, 1951

Uncommon. Only records QM113368, QM1-31077 and AMS119581-001. Tropical west Pacific.

Priolepis cincta (Regan, 1908)

Uncommon. Specimen, QM129168 from Tangalooma Wrecks and a sight record from Curtin Artificial Reef. Tropical Indo-west Pacific.

Priolepis cf. *falluincta* Winterbottom & Burrige, 1992

Rare. Southern record QM129805 from Curtin Artificial Reef. Tropical eastern Australia, Indo-Malay Archipelago and west Pacific.

Priolepis nuchifasciata (Günther, 1873)

Common. Tropical to subtropical eastern Australia.

Pseudogobius sp.

Abundant. Identified as *P.* sp. 2 (H. Larson pers. comm., 1998). Warm temperate to subtropical eastern Australia.

Redigobius cf. *bikolanus* (Herre, 1927)

Common. Tropical eastern Australia?

Redigobius macrostomus (Günther, 1861)

Common. Temperate eastern Australia.

Silhouettea cf. *evanilla* Larson & Miller, 1985

Uncommon? Small inconspicuous species found on subtidal bare sandy substrate. Southern record QM130695 from Western Banks (27°10'S). Tropical eastern and northern Australia.

Trimma neopina Whitley, 1959

Uncommon. Records from Tangalooma Wrecks, QM129167 and Amity Pt, QM129749 and QM131348. A sight record from Southport seaway. Tropical to subtropical eastern Australia.

Valenciennea immaculata (Ni, 1981)

Common. Kuitert (1993) stated that the Australian form of this species is a closely related but undescribed relative of the true *V. immaculata* from Chinese seas. Voucher QM129231. Subtropical to tropical west Pacific and western Australia.

AMBLYOPINAE

Brachyamblyopus rubristriata (Saville-Kent, 1889)

Common, usually found in estuarine mudbanks. Voucher QM117467. Tropical Australia.

Taeniooides purpurascens (De Vis, 1884)

Common. Tropical Australia

Trypanuchen microcephalus (Bleeker, 1860)

Common. Tropical east Indo-west Pacific.

OXUDERCINAE

Periophthalmus argentilineatus Valenciennes, 1837

Rare or now absent. Only records QM12738 collected in 1895 and a specimen from the Brisbane R. mouth reported (as *P. koelreuteri*?, Pallas) by Castelnau (1878). Southern record. Tropical Indo-west Pacific.

Scartelaos histophorus (Valenciennes, 1837)
Uncommon. Found on mudflats at Lota and mudbanks in the Brisbane R. (Townsend & Tibbits, 1995). Southern record QMI31099 from Talburpin Pt (27°39'S). Tropical north and east Indo-west Pacific.

FLEOTRIDIDAE

Butis butis (Hamilton-Buchanan, 1822)
Common. Found in estuaries, penetrating into freshwater. Tropical Indo-west Pacific.

Butis koilomatodon
Rare. *Prionobutis wardi* Whitley, 1939 is a junior synonym (H. Larson pers. comm., 1998). Specimens dredged from Cabbage Tree Ck, QMI31027 and Nundah Ck, QMI31093 (Fig. 2L). Southern record. Tropical Indo-west Pacific.

Eleotris melanosoma Bleeker, 1852
Rare. One specimen from Myora Ck mouth only. Southern record QMI31370.

Prionobutis microps (Weber, 1908)
Common. Often taken by beam trawl in local estuaries. Southern record QMI28604 from Logan R. Tropical east Indo-west Pacific.

MICRODESMIDAE

Ptereleotris heteroptera (Bleeker, 1855)
Rare. Only record AMS117(25-001). Tropical central and Indo-west Pacific.

Ptereleotris microlepis (Bleeker, 1856)
Uncommon inside Moreton Bay. Voucher QMI29234 from Tangalooma Wrecks. Tropical central and Indo-west Pacific.

ACANTHURIDAE

Acanthurus dussumieri Valenciennes, 1835
Common. Tropical central and Indo-west Pacific.

Acanthurus grammoptilus Richardson, 1843
Common. Tropical Indo-Australian Archipelago.

Acanthurus mata Cuvier, 1829
Rare inside Moreton Bay. Sight record by B. Hutchins from Southport seaway only. Tropical central and Indo-west Pacific.

Acanthurus nigrofuscus (Forsskål, 1775)
Common. Tropical central and Indo-west Pacific.

Acanthurus triostegus (Linnaeus, 1758)
Locally common at Bulwer and Southport seaway. Prefers reefs exposed to wave action. Tropical Indo-Pacific.

Acanthurus xanthopterus Valenciennes, 1835
Abundant. Tropical Indo-Pacific.

Ctenochaetus striatus (Quoy & Gaimard, 1825)
Rare inside Moreton Bay. Specimen, QMI31169 and a sight record, both from Southport seaway. Southern record. Tropical Indo-west Pacific.

Naso annulatus (Quoy & Gaimard, 1825)
Common. Tropical central and Indo-west Pacific.

Naso unicornis (Forsskål, 1775)
Common. Tropical central and Indo-west Pacific.

Prionurus maculatus Ogilby, 1887
Abundant. Subtropical eastern Australia and Southwest Pacific.

Prionurus microlepidotus Lacepede, 1804
Common. Subtropical eastern Australia.

Zaenclus cornutus (Linnaeus, 1758)
Uncommon inside Moreton Bay. Sightings from Amity Pt and Curtin Artificial Reef only. Tropical Indo-Pacific.

Zebrafishoma veliferum (Bloch, 1797)
Uncommon inside Moreton Bay. Tropical central and Indo-west Pacific.

SIGANIDAE

Siganus fuscescens (Houttuyn, 1782)
Abundant. Kuitert (1996: 374-377) recognises *S. margaritifera* (Valenciennes, 1835) and *S. nebulosus* (Quoy & Gaimard, 1824) from Australian waters, however Woodland (1990) regards these species as junior synonyms of *S. fuscescens*. Woodland states that the lateral spots on this species increase in number and decrease in size with age. Mature specimens of identical length have been noted locally to possess two distinct, roughly defineable size classes of spots. Adams & Woodland (1994) record the closely related *S. canaliculatus* from off nearby Maryborough (25°32'S). It may be one of the two

forms recognised above. Tropical to warm temperate east Indo-west Pacific.

Siganus lineatus (Valenciennes, 1835)
Rare. Two records, QMI3169 and QMI6692.
Tropical Indo-west Pacific to India.

Siganus spinus (Linnaeus, 1758)
Locally common at Amity Pt and Southport seaway based on sight records only. Tropical Indo-west Pacific to India.

TRICHIURIDAE

Trichiurus lepturus Linnaeus, 1758
Common. Circumglobal.

SCOMBRIDAE

Acanthocybium solandri (Cuvier, 1831)
Uncommon inside Moreton Bay. Circumtropical.

Cybiosarda elegans (Whitley, 1935)
Abundant. Tropical to warm temperate Australia.

Gasterochisna melaupus Richardson, 1845
Doubtful record. Reported by Ogilby (1912) on the basis of six specimens from the Brisbane fish market reportedly taken in Moreton Bay. Voucher QMI71. Usually an oceanic species. Southern temperate circumglobal.

Graumatocybus bicarinatus (Quoy & Gaimard, 1824)
Uncommon inside Moreton Bay, but often sighted near Flinders Reef (26°58'S). Reported by Ogilby (1918b) and Marshall (1964). No voucher specimens in QM. Subtropical eastern and western Australia.

Rastrelliger kanagurta (Cuvier, 1817)
Rare. Southern record QMI26378. Tropical Indo-west Pacific.

Sarda australis (Macleay, 1881)
Common. Reported by Grant (1993: 643) with a photograph of a specimen from Moreton Bay. Southeastern Australia and warm temperate southwest Pacific.

Scomber australasicus Cuvier, 1831
Common. Temperate to tropical Pacific and Indo-Australian Archipelago.

Scouberouorus comuversou (Lacepède, 1800)
Common. Tropical to temperate Indo-west Pacific.

Scouberouorus munroi Collette & Russo, 1980
Abundant. Tropical to subtropical Australia and southern New Guinea.

Scouberouorus queenslandicus Munro, 1943
Abundant. Tropical Australia and southern New Guinea.

Scouberouorus seuifasciatus (Macleay, 1884)
Common. Tropical Australia and southern New Guinea.

Thunnus maccoyii (Castelnau, 1872)
Rare. Reported by Ogilby (1908a) as *T. thynnus* (Linnaeus, 1758). Kailola et al. (1993) records northern limit as 30°00'S (near Coffs Harbour). Other scombrids, including *T. albacares* (Bonnaterre, 1788), *Euthynnus affinis* (Cantor, 1849), *Katsuwonus pelamis* (Linnaeus, 1758) and *Auxis thazard* (Lacepède, 1800) are commonly taken off Cape Moreton and have been reported by local gamefishing clubs and fishermen from within Moreton Bay, but no records have yet been verified. Southern temperate circumglobal.

Thunnus touggol (Bleeker, 1851)
Abundant. Tropical to warm temperate west Pacific, Indo-Australian Archipelago and northern Indian Ocean.

ISTIOPHORIDAE

Istiophorus platypterus (Shaw & Nodder, 1791)
Common. Tropical to temperate circumglobal.

Makaira indica (Cuvier, 1832)
Uncommon inside Moreton Bay. Tropical to temperate Indo-Pacific and east Atlantic.

CENTROLOPHIDAE

Schedophilus maculatus Günther, 1860
Rare. Reported from Moreton Bay (as *Leirus maculatus*) by Ogilby (1916b). McDowell (1982) states that it is probably an oceanic-pelagic species found in and over deep water. As is characteristic of small stromateoids, juveniles are known from near surface waters under jellyfish. In the region, recorded from Lord Howe I., central and southern NSW and New Zealand. Northern record QMI30989. Southern temperate circumglobal.

TABLE 1. Fifteen most speciose families in Moreton Bay

Family	Genera	Species	% of Total
Gobiidae	35	44	5.9
Labridae	21	44	5.9
Carangidae	19	37	4.9
Pomacentridae	12	34	4.5
Chaetodontidae	7	28	3.7
Serranidae	8	21	2.8
Scorpaenidae	15	20	2.7
Tetraodontidae	6	20	2.7
Apogonidae	5	19	2.5
Monacanthidae	15	16	2.1
Blennidae	8	15	2.0
Syngnathidae	12	15	2.0
Platycephalidae	7	15	2.0
Lutjanidae	4	14	1.9
Acanthuridae	6	13	1.7
Total	180	355	47.4

NOMEIDAE

Cubiceps squaniceps (Lloyd, 1909)

Uncommon inside Moreton Bay. *Psenes whiteleggii* Waite, 1894 and *Psenes hilli* Ogilby, 1915 are the juveniles of this species (Butler, 1979; P. Last pers. comm., 1995). Juveniles only, all recorded from Cowan Cowan. Adults frequently trawled in over 100m depth outside Moreton Bay.

Noueus gronovii (Gmelin, 1788)

Uncommon. All records from Cowan Cowan. Tropical to warm temperate circumglobal.

BOTHIDAE

Aruoglossus fisoni Ogilby, 1898

Common. Subtropical eastern Australia.

Arnoglossus waitei Norman, 1926

Uncommon. Reported as numerous in trawl samples by Weng (1988), but possibly confused with *A. fisoni*. Northern Australia.

Engyprosopou grandisquamma (Schlegel, 1846)

Common. Tropical Indo-west Pacific.

Grammatobothus pennatus (Ogilby, 1913)

Rare. Only record, holotype, QMI1557. Southern limit extended from Moreton Bay to Clarence

R., NSW (29°26'S) by Graham & Wood (1997). Tropical Australia.

Lophouectes gallus Günther, 1880

Rare inside Moreton Bay. Reported by Ogilby (1912). Northern record QMI1517. Southeastern Australia and warm temperate southwest Pacific.

Pseudorhombus arsius (Hamilton, 1822)

Common. Tropical to warm temperate Indo-west Pacific.

Pseudorhombus elevatus Ogilby, 1912

Rare. Only record holotype, QMI1569. Southern record. Tropical Indian Ocean and Indo-Australian Archipelago.

Pseudorhombus jenynsii (Bleeker, 1855)

Abundant. Temperate to subtropical Australia.

SOLEIDAE

Aseraggodes macleayanus (Ramsay, 1881)

Common. Tropical to subtropical northeastern Australia.

Aseraggodes sp.

Rare. Only record QMI29807. Colour light brown, profusely freckled with dusky spots about half size of eye; several larger spots along lateral line. Figured in Kuitert (1993: 391; 1996: 384). Subtropical eastern Australia.

Dexillichthys sp.

Rare. Possibly an undescribed species. Eyes are contiguous and pectoral fin reduced. Squamation differs from *D. muelleri* (Steindachner, 1879). Known only by QMI11440 and QMI26926 from Moreton Bay. Southern record. Subtropical eastern Australia.

Pardachirus hedleyi Ogilby, 1916

Common. Warm temperate to subtropical eastern Australia.

Phyllichthys sclerolepis (Macleay, 1878)

Uncommon. Southern record QMI12355 from Myora. Northern to subtropical eastern Australia.

Synaptura nigra Macleay, 1880

Common. Temperate to subtropical eastern Australia.

Zebrias scalaris Gomon, 1987

Rare. Reported north to Moreton Bay by Gomon (1987) and Gomon et al. (1994) based on a specimen from off Moreton I., (NMVA2787). Occasionally trawled in moderate depths (35-80m) outside Moreton Bay. Record of *Z. quagga* (Kaup, 1858) from Brisbane by Castelnau (1879) almost certainly represents a misidentification of this species. Occurs north to off Pt Cartwright (26°40'S, QM19976). Temperate to subtropical eastern Australia.

CYNOGLOSSIDAE

Cynoglossus bilineatus (Lacepède, 1802)

Uncommon. Recorded by Stephenson and Burgess (1980) and included in several unpublished reports on trawl bycatch surveys. Widespread in northern Australia. No specimens in QM. Southern limit. Tropical to subtropical northwest Pacific, Indo-Australian Archipelago and east Indian Ocean.

Cynoglossus maccullochi Norman, 1926

Uncommon. Frequently confused with *C. maculipinnis*, Voucher QM130210. Tropical eastern Australia.

Cynoglossus maculipinnis Rendahl, 1921

Abundant. Tropical Australia.

Cynoglossus sp.

Common. Body and fins brown, without spots or mottling; individual scales with darker margins. Currently under study by T. Munroe (USNM). Voucher QM129517-9. Subtropical eastern Australia.

Paraplagusia bilineata (Bloch, 1787)

Common. Menon (1979) and Chapleau and Renaud (1993) regard *P. guttata* (Macleay, 1878) and *P. unicolor* (Macleay, 1881) as junior synonyms. Marshall (1964: 467) provided a key to separate these species in Qld waters. It appears that this key may refer to *P. bilineata* and one of the two species below. Vouchers QM114565, QM130652, QM130657. Tropical Indo-west Pacific.

Paraplagusia sinerama Chapleau & Renaud, 1993

Common. The appropriate name for this species is uncertain because of an apparently insoluble problem with two putative holotypes of a De Vis (1883) species. *Plagusia* (= *Paraplagusia*) *notata*, from Moreton Bay (Johnson, 1999). *Paraplagusia sinerama* was previously recorded

only from north-western Australia. Southern record QM130163, Tropical Australia.

Paraplagusia sp.

Common. This species appears closely related to *P. bilineata*. Menon (1979) identified specimens of *P. blochi* (Bleeker, 1851) from Moreton Bay in the British Museum collection. However, Chapleau & Renaud (1993) reassessed several of the key characters employed by Menon in distinguishing these species and considered them not to be useful in defining species. They also failed to include *P. blochi* in their discussion of *Paraplagusia* known from northern Australia. The species treated here has vague pale rounded to oval spots on the ocular side whereas *P. blochi* is uniformly light brown. *Paraplagusia bilineata* differs from this species in colouration (smaller irregular pale angular spots or flecks on the ocular side) and in degree of branching to lower labial papillae (relatively sparse, often simple tuberculate branches vs numerous fimbriate or arborescent branches). In addition, although *P. bilineata* is reported to have either 2 or 3 lateral lines on the ocular side (Chapleau & Renaud, 1993), all QM specimens of *P. bilineata* have three lateral lines and specimens of the species treated here have only two. Vouchers QM113077, QM130691. Warm temperate to subtropical eastern Australia.

TRIACANTIIDAE

Triacanthus biaculeatus (Bloch, 1786)

Uncommon. One specimen record (AMSI-19582-001) and several reports from trawl surveys including Stephenson & Burgess (1980). Tropical west Pacific, Indo-Australian Archipelago and northern Indian Ocean.

Tripodichthys angustifrons (Hollard, 1854)

Common. Tropical Indo-Australian Archipelago.

BALISTIDAE

Abulistes stellatus (Lacepède, 1798)

Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Balistapus undulatus (Park, 1797)

Rare. Only record QM1303. Southern record. Tropical central and Indo-west Pacific.

Canthidermis maculatus (Bloch, 1786)

Rare. Only record QM13222, from Brisbane R. Southern record. Circumtropical.

Sufflamen chrysopterus (Bloch & Schneider, 1801)

Locally common at Curtin Artificial Reef and Comboyuro Pt. Tropical to subtropical Indo-west Pacific.

Sufflamen fraenatus (Latreille, 1804)

Locally common at Curtin Artificial Reef and Comboyuro Pt. Tropical to subtropical central and Indo-west Pacific.

MONACANTHIDAE

Acreichthys tomentosus (Linnaeus, 1758)

Doubtful record. Only Australian specimen, QM19237 (Hutchins pers. comm., 1997) was labelled 'Moreton Bay' but was registered from an old collection which also included specimens from the Solomon Islands. Tropical west Pacific and Indo-Malay Archipelago.

Anacanthus barbatus Gray, 1831

Common. East Indian Ocean and Indo-Australian Archipelago.

Brachaluteres jacksonianus (Quoy & Gaimard, 1824)

Uncommon. Temperate Australia.

Cuntherhines pardalis (Rüppell, 1837)

Uncommon. Voucher QM131002. Tropical Indo-west Pacific.

Cuntheschenia grandisquamis Hutchins, 1977

Common. Subtropical eastern Australia

Chaetoderma penicilligera (Cuvier, 1817)

Common. Tropical west Pacific and Indo-Australian Archipelago.

Eubulichthys mosaicus (Ramsay & Ogilby, 1886)

Rare. Only record QM126225. Temperate Australia.

Meuschenia trachylepis (Günther, 1870)

Abundant. Temperate to subtropical eastern Australia.

Monacanthus chinensis (Osbeck, 1765)

Abundant. Tropical to warm temperate west Pacific and Indo-Australian Archipelago.

Nelusetta uyraudii (Quoy & Gaimard, 1824)

Rare inside Moreton Bay. Voucher QM1308. Occurs north to off Caloundra (26°48'S), QM130216. Temperate Australia and southwest Pacific.

Paraluteres prionurus (Bleeker, 1851)

Common. Tropical eastern Australia and Indo-west Pacific.

Paramonacanthus filicnudu (Günther, 1880)

Uncommon inside Moreton Bay. Usually placed in *Paramonacanthus* but shown to belong to an undescribed genus by Hutchins (1997). Tropical to subtropical Australia.

Parauonacanthus otiseusis Whitley, 1931

Abundant. Frequently misidentified as *P. oblongus* (Schlegel, 1850). Ranked first in order of abundance of trawled fishes in Moreton Bay by Stephenson and Burgess (1980). Tropical to warm temperate eastern Australia.

Pervagor janthiuosoma (Bleeker, 1854)

Common. Tropical Indo-west Pacific.

Pseudulutarinus uasicornis (Temminck & Schlegel, 1850)

Uncommon. Tropical to subtropical Indo-west Pacific.

Pseudomonacanthus peroui (Hollard, 1854)

Common. Tropical to subtropical eastern Australia.

OSTRACIIDAE

Lactoria cornuta (Linnaeus, 1758)

Common. Tropical central and Indo-west Pacific.

Lactoria diaphana (Bloch & Schneider, 1801)

Uncommon inside Moreton Bay. Tropical to warm temperate Indo-west Pacific.

Lactoria fornasini (Bianconi, 1846)

Uncommon inside Moreton Bay. Tropical Indo-west Pacific.

Ostracion cubicus Linnaeus, 1758

Common. Tropical to warm temperate Indo-west Pacific.

Ostracion meleagris Shaw, 1796

Rare inside Moreton Bay. Sight record from Southport seaway only. Tropical Indo-Pacific.

Tetrosomus coucateuatus (Bloch, 1786)
Common. Tropical to warm temperate Indo-west Pacific.

Tetrosomus gibbosus (Linnaeus, 1758)
Uncommon. Only record QM112382. Tropical Indo-west Pacific.

TETRAODONTIDAE

Arothron hispidus (Linnaeus, 1758)
Common. Tropical Indo-Pacific.

Arothron manilensis (de Proce, 1822)
Common. Tropical west Pacific and Indo-Australian Archipelago.

Arothron nigropunctatus (Bloch & Schneider, 1801)
Rare inside Moreton Bay. Only records QM1351 and QM130404 from Amity Pt. Tropical Indo-west Pacific.

Arothron stellatus (Bloch & Schneider, 1801)
Common. Tropical central and Indo-west Pacific.

Canthigaster bennetti (Bleeker, 1854)
Common. Tropical Indo-west Pacific.

Canthigaster callisterna (Ogilby, 1889)
Uncommon. Reported from Lord Howe and Norfolk I. and NSW coast by Allen & Randall (1977). Specimen from Southport, QM11586 and a sight record from Amity Pt. Occurs north to at least Flinders Reef (26°58'S) based on personal observations (1997). Warm temperate eastern Australia and southwest Pacific.

Canthigaster jantlinoptera (Bleeker, 1855)
Rare. One specimen, QM130260 from Amity Pt. Tropical Indo-west Pacific.

Canthigaster valentini (Bleeker, 1853)
Common. Tropical Indo-west Pacific.

Lagocephalus inermis (Temminck & Schegel, 1850)
Common. Tropical Indo-west Pacific.

Lagocephalus huiaris (Bloch & Schneider, 1801)
Common. Tropical Indo-west Pacific.

Lagocephalus scleratus (Gmelin, 1788)
Common. Tropical Indo-west Pacific.

Marilyna pleurosticta (Günther, 1871)
Abundant. Tropical to subtropical eastern Australia.

Tetractenos glaber (Fremenville, 1813)
Rare. One specimen only. Northern record QM1344. Temperate eastern Australia and eastern South Australia.

Tetractenos hamiltoni (Gray & Richardson, 1843)
Abundant. Warm temperate to subtropical eastern Australia and southwest Pacific.

Torquigener altipiunus (Ogilby, 1891)
Uncommon inside Moreton Bay. Warm temperate to subtropical eastern Australia and southwest Pacific.

Torquigener perlevis (Ogilby, 1908)
Common. Warm temperate eastern Australia to the Gulf of Carpentaria.

Torquigener pleurogramma (Regan, 1903)
Abundant. Temperate to subtropical Australia.

Torquigener squamicanda (Ogilby, 1911)
Abundant. Warm temperate to subtropical eastern Australia.

Torquigener tuberculiferus (Ogilby, 1912)
Rare. One syntype, QM11531 only. Southern limit extended from Moreton Bay to Clarence R., NSW (29°26'S) by Graham & Wood (1997). Tropical to subtropical eastern Australia.

Torquigener whiteyi (Paradice, 1927)
Common. Southern record QM110044. Tropical Australia.

DIODONTIDAE

Chilomycterus reticulatus (Linnaeus, 1758)
Rare. Sight record from Bulwer only. Circum-tropical.

Dicotylichthys punctulatus Kaup, 1855
Common. Temperate to subtropical eastern Australia.

Diodon holocanthus Linnaeus, 1758
Common. Tropical to warm temperate circum-global.

Tragulichthys jaculiferus (Cuvier, 1818)
Common. Tropical to subtropical Australia.

DISCUSSION

A total of 750 species from 148 families are recorded from Moreton Bay, although references to the occurrence of 11 species are considered doubtful and cannot be verified on the basis of extant specimens or recent observations. Doubtful species have probably been reported by authors due to misidentifications or the use of a broader definition of Moreton Bay, to include nearby offshore areas. A large number of species (47.3%) are uncommon or rare. Some are vagrants that are unlikely to form breeding populations in the area. No species are endemic to the area. Several, including the unidentified species of *Ophichthus* and *Cocotropus* and the blind shark *Brachaeurus colcloughi* are poorly known within and outside the region. Two species are new records for Australia. *Carangoides dinema*, although widespread in the Indo-west Pacific, had not been recorded from Australian waters (Gunn, 1990). *Matsubaraea fusiforme* was previously known only from the northern hemisphere, from southern Japan, the Gulf of Thailand and northern waters of the Philippines. Given the long period over which records from this area have been accumulated and its proximity to a large centre of population, the chances of obtaining outliers and rare species has been enhanced. Only 26 species reach the northern limit to their range (along the east coast of Australia) in Moreton Bay, and all but 8 of these are rare in the area and probably only occur as transients. Preliminary analysis of QM records suggest that the inclusion of adjacent offshore waters and the waters north to the vicinity of Fraser Island would create a more readily definable ecotone which would constitute the northern range limit to significantly more subtropical or temperate species. Conversely, Moreton Bay is the southernmost large subtropical embayment on the east coast of Australia and forms the southern range limit to 132 species (17.6% of the fish fauna of Moreton Bay). Many other tropical species are found only rarely or as juveniles in waters further south. The fish fauna of Moreton Bay may be broadly categorised as comprising 385 (51.5%) reef/rocky shore, 189 (25%) demersal soft bottom, 75 (10%) estuarine and 101 (13.5%) pelagic species. Twelve species usually found at depths in excess of 40m, 15 oceanic transients and 6 freshwater species commonly found in lower estuarine areas are recorded. Many prefer habitat types that are poorly represented in the

area, such as surf zones or coral reefs, or clearer oceanic waters.

The 15 most speciose families account for 47.4 percent of the fauna and the top 12 account for 41.8 percent (Table 1). Proportionally, this is broadly consistent with the estimates of Paxton et al. (1989), who found the 12 most speciose fish families in Australian waters (including freshwater species) contribute 36.8% of the Australian fish fauna. However, in the Australia-wide figures, 8 families are strongly coral reef associated, a further 2 comprise deep water inhabitants and the remaining 2 have at least half of their species in temperate regions. Moreton Bay as defined here lacks large or complex coral reef systems, is confined to depths of less than 40m and falls within a generally subtropical climatic regime. The nominal diversity of fishes listed here is large in the Australian context, although significantly enhanced by its geographic zoning between major tropical and temperate bioregions.

Comparisons with other fish faunal lists from eastern Australian tropical to warm temperate waters is complicated by habitat selectivity caused by the boundaries of the areas surveyed and their geographic location. This checklist excludes many additional species known to occur in adjacent deeper and clearer waters and around the more diverse coral reefs immediately outside Moreton Bay, such as Flinders Reef (26°58'S). Using existing QM data, preliminary estimates of the fishes of the broader Moreton Bay Marine Park (26°48'S - 27°56'S) and offshore reefs north to Fraser Island (25°00'S) are in excess of 1200 species. Surveys for a supplementary checklist covering this region are in progress.

Trinski et al. (1993) recorded 413 marine and estuarine fishes of 92 families from the Shoalwater Bay area (22°08'S - 22°40'S). This region, although proximal to the southern end of the Swain Reefs complex of the Great Barrier Reef, has no coral reefs and most families typical of these habitats are poorly represented. Although, like Moreton Bay, there are proportionately large and diverse mangrove and seagrass communities, Shoalwater Bay is subject to much less estuarine influence and has significantly more rocky reef, with swell-exposed headlands and well developed associated algal communities. Of the Shoalwater Bay fishes, 165 (40%) are reef/rocky shore, 145 (35%) are demersal soft bottom, 65 (16%) are estuarine and 38 (9%) are pelagic species. The predominance of muddy

substrates, turbid conditions and lack of coral habitat appear to have boosted the proportions of estuarine and demersal soft bottom fishes at the expense of reef-dwelling and pelagic species, relative to the proportions prevailing in Moreton Bay. Figures (revised from Trinski et al., 1993) indicate that only 43 fish species (10.4 % of the total) have north/south range limits in Shoalwater Bay. The area forms the northern limit to 12 species and the southern limit to 31 species. In contrast, 158 or 21.1% of the fish species of Moreton Bay reach their north/south range limits in Moreton Bay.

Detailed inventories of the fishes of the Capricorn-Bunker Group (23°00'S - 24°00'S) were presented by Russell (1983) and Lowe & Russell (1990). The large and diverse system of coral reefs, interposed by relatively shallow soft bottom and some deeper shelf waters is reported to support 920 species of 121 families. There are no estuarine, mangrove or mainland inshore areas and little rocky reef within the Capricorn Bunker Group. According to Lowe & Russell (1990) coral reef species comprise 90%, demersal soft bottom 8.5% and oceanic pelagic species 1.5% of the total fauna. Checklists of the fishes of Elizabeth and Middleton Reefs (Gill & Reader, 1992) and Lord Howe I. (Francis, 1993) include 314 species of 75 families and 433 species of 88 families respectively. Both are oceanic areas encompassing mainly rocky reefal habitats with corals and littoral sandy to rocky shores. Neither include estuarine, mangrove, seagrass or inshore muddy habitats or collections from subtidal demersal soft bottom. Habitat disparities render comparative analysis between the Moreton Bay fish fauna and that of the Capricorn-Bunker Group, Elizabeth-Middleton Reefs and Lord Howe Island difficult and emphasise the need for broader scale documentation of south-east Queensland reef fishes.

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